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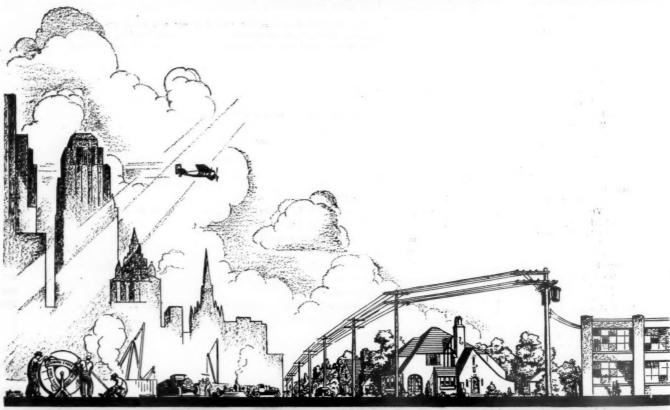
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GENERAL CABLE

RAILWAY AGE

Commission Proposes Revolution in Rate Legislation

Considering both recent and prospective traffic and earnings, the railroad industry is probably in as serious a condition at present as it ever has been. With this situation existing, which is principally due to the policy of regulation that has been followed by the Interstate Commerce Commission, the commission is recommending and Congress is considering legislation that would radically change the Transportation act and greatly increase the statutory power of the commission.

The latest recommendations of the commission were made on January 21 in a letter to Senator Couzens, chairman of the Committee on Interstate and Foreign Commerce of the Senate. These recommendations are that the recapture provisions shall be repealed and that the rate-making provisions shall be so changed that Congress will in effect direct the commission to regulate rates and earnings in complete disregard of the constitutional rights of the railways, as defined by the Supreme court.

Repeal the Recapture Provisions

The rate-making and recapture provisions both appear in Section 15-A. They were intended by Congress to supplement each other, and it was assumed, of course, that both would be carried out. The rate-making provisions have never been carried out, however, the railways as a whole having never in any year since they were passed earned a fair return. It would be only fair, therefore, that roads which, in one or more years, have made recapturable earnings should be relieved of paying them. Whether the recapture provisions should be entirely repealed depends upon whether their retention probably would afford an effective incentive to the commission to so fix rates in future as to give the railways opportunity to earn a fair return upon a fair valuation, as defined by the Supreme Court. The experience of eleven years under the Transportation act, and the commission's letter to Senator Couzens indicate that the commission is determined not to so regulate rates. Therefore, the recapture provisions should be entirely repealed. Their repeal, however, would contribute little toward the solution of the railroad problem, as it would not benefit the large majority of roads having earnings insufficient to make them subject to recapture.

The question as to what changes should be made in the rate-making provisions is, in a legal sense, at least, the most important of all questions regarding federal regulation of railways. The commission renews its recommendation that legislation shall be passed by which Congress would direct it to substitute "rate bases", arrived at by the method of "valuation" used by it in the O'Fallon case, for valuations made in accordance with the decisions of the Supreme court. It further recommends that it shall be directed to determine from time to time and make public what percentage of the aggregate rate bases of the operating carriers constitutes a fair return, and that in making this determination it shall consider the transportation needs of the country; the necessity, in the public interest, of the carriers being able to attract capital; and the necessity, in the public interest, that the carriers shall furnish transportation to shippers and travelers at the lowest rates consistent with the rendering of good service. "The fact that such aggregate net railway operating income falls below such amount (a 'fair return') in times of economic depression, or rises above it in times of economic prosperity, shall not necessarily be regarded as a reason for raising or reducing rates, as the case may be; but the duty of the commission in the exercise of sound discretion shall be to maintain so far as possible a general level of rates which, over a period of years, will produce earnings consistent with the principles above set forth."

A Proposal to Disregard the Constitution

The existing rate-making provisions direct the Commission to give the railways opportunity to earn a fair return upon a fair valuation in accordance with the federal constitution, as interpreted by the Supreme court, and tell it how Congress wishes it to adjust rates in order to accomplish this result. By the legislation

recommended by the commission in its letter to Senator Couzens Congress would direct the commission not to so adjust rates as to give the railways opportunity to earn the constitutional fair return upon a fair valuation. A "rate base" arrived at by the commission's method would be much less than a constitutional valuation and it could adopt any percentage of this "rate base" that it pleased as a "fair return". Thus the commission would be given virtually unlimited discretion in determining the amount of net operating income the railways should be allowed to earn.

Under the existing rate-making provisions the railways can appeal from the commission to the courts upon the ground that the commission is not regulating rates in accordance with the directions given by Congress in these provisions. Under the proposed legislation the railways could not appeal to the courts upon the ground that the commission was not carrying out the statutory instructions of Congress, because virtually the only instructions the commission would have from Congress would be to regulate rates in accordance with its own "sound discretion". The railways would be left, as they were before the Transportation act was passed, with no protection from unfair regulation by the commission excepting the right to appeal to the courts upon the ground that their property was being confiscated in violation of the constitution.

To say that this would not involve a change in the law that would be highly unfavorable to the railways, and therefore of great importance, is absurd. It would involve a complete revolution in the law of ratemaking, and it is significant that five of the six members of the commission who are lawyers—Chairman Brainerd and Commissioners Porter, Farrell, Lee and Tate—safeguarded their reputations by having included in the commission's letter statements showing clearly that, in their opinion, the so-called "rate base" would have no legal standing, and that the Supreme court would hold unconstitutional any decision of the commission to the effect that the railways could be restricted to less than a fair return upon a valuation made in accordance with past decisions of the court.

It is necessary, however, to consider the question from a practical as well as a legalistic standpoint. Prior to 1920, when the Act to Regulate Commerce merely instructed the commission to fix rates that would be reasonable and non-discriminatory, the commission so regulated rates that the general tendency of net return was downward, and, although traffic was growing rapidly, the railways became so unable to raise adequate capital that shortages of transportation became chronic and inflicted enormous losses upon agriculture, industry and commerce.

Transportation Act Not Carried Out

The instructions regarding rate-making given by Congress in the Transportation act were expressly intended to insure that in future the railways would be allowed to earn adequate returns. As the commission says in its letter to Senator Couzens, "Previously there had been no such instructions and, rightly or wrongly, the impression had been created among investors that the commission could not safely be intrusted with such discretion and that some definite statutory measure of protection was needed." The commission admits that the instructions given to it in the Transportation act have not been carried out. It recalls that within six months after the enactment of the Transportation act it granted a horizontal advance in rates that was intended to produce a fair return, but that a depression immediately followed and prevented the intended return from being realized. In 1922 it ordered a 10 per cent general reduction of rates in the belief that this would give "fuller assurance to the carriers of realizing the fair return contemplated by the law." It says that, "In general, the results which followed justified, we believe, the conclusions then reached." Until the beginning of the present depression "the earnings and credit of the railroads in most sections of the country steadily improved," although "the aggregate earnings in the country as a whole and in general in the various groups did not rise to the level contemplated by the statute, even on the basis of our estimates of aggregate value. * * * The continued improvement in railroad earnings and credit, however, was sufficiently reassuring so that we did not feel warranted in initiating or approving any further horizontal increases in rates. * * * There was no * * * anticipation of any serious and prolonged business depression. Such a depression, however, fell upon the country in 1929, and continued throughout 1930 and still exists * * * with the result that aggregate net railway operating income is far below the level contemplated by Section 15-A."

A Chronic Lack of Foresight

From the foregoing recital of experience the only conclusion the commission draws is that it is impracticable to so fix rates that the carriers will earn a fair return in every year. In doing this it merely knocks out a straw man, because nobody ever claimed that rates could be so adjusted that the carriers would earn a fair return in every year. It fails to draw from its recital of experience another obvious and much more important conclusion-namely, that the commission has constantly failed correctly to forecast the changes in those "general economic conditions" which it so solemnly announces, as if it were a new discovery, "must be taken into consideration in the determination of the general freight rate level." In fact, from the time it decided the case for a general advance in rates instituted by the railways in 1910 down to the present time, the commission has invariably over-estimated the return the railways would earn on the rates it has authorized them to charge, and it is mainly in consequence of this that both before and since the Transportation act was passed the railways have constantly failed to

earn a fair return, measured even by the commission's own standards.

The commission's intimation that no such result of its policy as the small return the railways have earned during the present depression could have been anticipated is absurd. It was anticipated by every student of railway affairs excepting the commission. All past experience was a warning that sooner or later such a depression would occur. Over and over again the commission's attention was called to the fact that if it persisted in restricting the railways to return so much less than fair as they earned in the prosperous years 1923-1929 they would be threatened with general bankruptcy if a severe depression came. The present financial condition of the railways would not exist if the commission had not constantly refused to give consideration to this obvious fact.

The rate-making provisions of the Transportation act having completely failed to accomplish their purpose of enabling the railways to earn the constitutional fair return principally because the commission actually has not tried to carry them out, the commission now asks Congress to withdraw its mandate to make rates in a constitutional way, and to give it virtually unlimited discretion to determine the amount of net operating income the railways need and shall be allowed to earn. It concedes, in its letter to Senator Couzens, that previously to 1920 "the impression had been created among investors that the commission could not safely be intrusted with such discretion and that some definite statutory measure of protection was needed." Under the legislation now proposed by it, the commission would have expressly conferred upon it by statute, not only a discretion, but a positive duty, to disregard the constitutional rights of investors. This would hardly give investors any more confidence in its regulation than they had prior to 1920.

Commission a Law Unto Itself

Should the proposed legislation, nevertheless, be passed? The experience of the last quarter century indicates that it will make very little difference in ratemaking whether it is passed or not. Under the constitution, as interpreted by the courts, the railways always have been entitled to a fair return. The commission did not let them earn it prior to 1920. The Transportation act specifically instructed the commission to let them earn it, but the commission has not carried out these instructions. In other words, for twenty-five years the commission has persistently refused, regardless of the trends of business and traffic, and of the financial condition of the carriers, to be governed either by the constitution or statutory provisions. It has been a law unto itself, and its regulation has been determined by political influences and the economic views of its members. This will continue to be true in future unless new members of the commission prevent it. The commission has exercised discretion which the law of the land has specifically denied it. It will make no difference in railway earnings or service if it exercises the same discretion under legislation that authorizes its exercise.

There may even be an advantage in giving it by legislation an enlarged discretion and the increased responsibility that must accompany it. Federal regulation of railway rates always has been, and perhaps always will be, a matter of men, and not of laws, depending upon the caliber and economic views of the men appointed to the commission, rather than upon constitutional and statutory provisions. To give to the commission, in bald defiance of constitutional limitations, such power over the earnings of the railroad industry as the commission now seeks would be, however, to give it by statute such a power of life and death over an industry as no government body in this country ever before possessed or even sought. Never before was it deliberately and knowingly proposed to enact a statute giving a government body a discretionary power to deal with private property that was admittedly intended to be exercised regardless of the federal constitution, as interpreted by the Supreme court. Certainly the power to exercise such discretion should only be sought by and given to men possessing complete freedom from political influence, the most judicial temperaments, almost infallible foresight and prodigious ability. Do the present members of the Interstate Commerce Commission possess these qualifications? More than one-half of them have been members of the commission for only two years or less, and therefore it is too early to judge of their qualifications. Men who ask for such power over other people's property should, however, have great confidence in their own capacity.

Changes in existing federal laws for the regulation of railways may hasten the disaster toward which the railways seem to be drifting, but cannot prevent it. The principal thing needed to prevent it is the adoption by the commission of a constructive policy that will help the railways to recover their earning capacity; and there is no feature of the present situation more discouraging than the fact that, in the very teeth of this menacing situation, the commission is advocating legislation that would not only empower but direct it to continue to carry out an unconstitutional and confiscatory policy of regulation.

The commission asks for more power. What it needs is more fairness, brains and courage, or a great deal more use of those that it has. Certainly if the time has come, when, not the constitution, but the members of the commission, are to control regulation, then the time has come when those who want to save the railroad industry from being ruined should begin to fight for the appointment and confirmation of members of the commission who will have and use the ability and courage to regulate the railways with some regard to their welfare and to the public necessity of enabling them to maintain and improve properties and service.

Tourists from Abroad

Progress is being made in the effort to organize a systematic campaign for promoting tourist travel by foreigners in America. Mention has heretofore been made in these columns of the Dyer bill now before Congress which would authorize official effort to attract foreign tourists to these shores. There cannot very well be any serious objections to this bill, so there seems no reason why it should not eventually pass, if those at interest will give it their support. And this category certainly includes all railway men.

Our own tourists travel in great numbers in their private automobiles. Practically all those coming from abroad, on the other hand, are potential railway passengers. How build up this travel? The Bureau of Foreign and Domestic Commerce has just issued a 66-page report entitled "The Promotion of Tourist Travel by Foreign Countries" which gives an excellent summary of efforts made abroad which yields an annual revenue of over 800 millions from American tourists. It is a stimulating report which should arouse the interest of every passenger traffic officer.

Low Bus Taxes a Burden on Small Incomes

The bulk of railway taxes is paid to state and local communities, particularly the latter, and generally in the form of a property tax. However levied, all taxes are one of their costs of doing business, and must be considered in establishing rate levels.

Railway property upon which taxes are levied consists not only of rolling stock but also of roadway and buildings. In fact, by far the greater part of railway property consists of roadway and other permanent structures. The railways, in other words, own all the facilities which they use in doing business. In contrast, the property of highway carriers, upon which taxes are levied, consists almost entirely of rolling stock—motor coaches and trucks—with an occasional garage or station. The greater part of the investment required to conduct highway operations is supplied by the public in the form of improved roads.

"The Motor Bus Tax Burden," a pamphlet issued by the National Association of Motor Bus Operators, states that *general* taxes (as distinguished from special license fees) paid by buses in 1929 equaled 1.30 per cent on their investment, while railroad taxes in the same year totaled 1.53 per cent of property investment. (The Bureau of Railway Economics computation was 1.6 per cent.) According to the bus operators' own testimony, they are paying in *general* taxes on their investment a smaller percentage than the railroads are. But, much more significant, they are paying this smaller percentage upon a very limited investment—an investment which represents only a fraction of the cost of the

facilities they use in doing business—while the railway percentage is based upon the entire investment in railway transport. It is plain, therefore, that a comparison of the ratio of taxation on property investment of commercial motor operators with that of railroads is unfair to the latter. The only fair comparison is between the ratios of taxes to gross income of the two forms of transport, after deducting special license fees.

Total bus taxation, including special license fees, in 1928, according to the bus operators' publication, "Bus Facts," averaged 7.23 per cent of gross revenues. But, says "The Motor Bus Tax Burden," the proportion of general taxes to total bus taxes is but 14.5 per cent. Fourteen and five-tenths per cent of 7.23 is 1.05 per cent. This 1.05 per cent, being that part of gross bus revenues representing general taxation, special fees for road use being excluded, is the figure which must be compared with the ratio of railroad taxation to railroad gross revenue. In 1928, this ratio was 6.37 per cent.

In other words, leaving out of all account the question of the adequacy of special charges for the use of the highways, and restricting the discussion to the question of taxation for general purposes, the bus operator in 1928 was able to fix his rates on a tax basis of 1.05 cents for each dollar collected, whereas the railway had to base its charges on a tax of 6.37 cents a dollar.

Every small taxpayer knows that it is the city and county which consume most of his tax contributions. A modest householder, with an income low enough to escape the federal income tax entirely, may nevertheless be presented with a tax bill of upwards of \$100 on his property. His even less fortunate neighbor who owns no real estate will pay as much in added cost of rent. And of the \$100 paid in taxes, \$90 will not unlikely go to his city and county and only \$10 to the state. To provide tax relief, therefore, for the vast majority of the American people—the vast majority who most need relief—local taxes should be reduced.

Of the hundreds of millions of dollars paid in taxes by the railways, over fifty per cent goes to local communities, and to that extent reduces the tax burdens of those who most need such assistance. Of the taxes paid by motor bus lines, according to the bus association's own admission, only 14.5 per cent goes for general purposes, and the remaining 85.5 per cent they pay "for the use of the highway." Hence, bus lines are contributing paltry hundreds of dollars to the tax receipts of counties and local governments, whereas the railways are paying hundreds of thousands.

No one escapes local taxes. They fall relentlessly on the shoulders of the drought-stricken farmer and the unemployed workingman, whether they own property or are forced to pay rent. By their weight on modest-income groups who form our great consuming population they are a brake on return of better times.

Are the great mass of the American people who pay only state and local taxes prepared to see the latter greatly increased because of the abandonment of railways due to the activities of competitors who make only slight contributions to local tax receipts?



A Coal Train of 8,800 Tons on the Burlington

Building Up Tonnage Trains

Burlington's plans of 30 years ago bear fruit on Beardstown line

INTER and summer, the Chicago, Burlington & Quincy handles coal trains averaging 8,800 tons over its Beardstown division, making long runs without stops for any purpose, and rendering a valuable service to the mines in the southern Illinois field. The present efficiency of the coal-handling operations may be attributed, in large measure, to the working out of a careful plan that had its inception nearly 30 years ago. This plan was considered an ambitious one at the time and there were many who doubted its possibility. Nonetheless, so sound was it and so well has it been carried out, that, in its fruition, the heavy trains mentioned are operating over a large portion of what is probably the longest low grade line in the country, extending for more than 600 miles from the Illinois coal fields to the Twin Cities.

Certainly the originators of the plan in the days when 300 tons was the maximum trainload on this line and 1.5 per cent grades were frequent, could not have predicted the ultimate peak at which the line would arrive. The fact remains, however, that their plan was sound, and it has been carried to a successful conclusion despite rate difficulties, upheavals in the coal industry, wars and other adverse factors. Each step that has been taken has been toward a more economical handling by increasing the train load.

The average train tonnage supplies a barometer with which to gage the increasing efficiency. From the original 300 tons, this had risen to above 2,500 tons in 1910. In 1920, the Beardstown division, on which the coal originates, hauled an average of 5,250 tons of coal per train from the southern Illinois mines, while in 1929, this average was increased to 8,750 tons. These results were obtained by a practically complete rebuilding and subsequent double-tracking of the line, permitting the efficient use of heavier power, which, in turn, was followed by changes in operating methods to take the fullest advantage of the changed conditions.

Other statistics relating to the Beardstown division

bear out the improvement still further. The transportation ratio was 25.92 in December, 1920, and 13.57 in December, 1929, while during the months of heaviest traffic, this ratio is even lower. For example, in October, 1929, it was 12.28.

A comparison of results during the months of heaviest traffic shows the following:

	October, 1920	October, 1929
Loaded car miles	6,144,405	5.316.818
Cars coal loaded		21,341
Net tons		223,406,000
Net tons per train mile		1,673.8
Total payroll (Road train and engineman)		\$55,941
Total payroll (Yardmen)	\$37.560	\$28.230

The Coal Lines

The coal lines include the portions of the Beardstowr division between West Frankfort, Ill., and Herrin, to Bushnell, Ill., and the Galesburg division between Bushnell and Galesburg, at which latter point the coal trains are broken up for movement east, west and north.

These lines have had an interesting history in the course of their development from purely local lines to important coal-carriers, handling also a considerable amount of through business. The Burlington owned a line between Savanna, Ill., and St. Louis, Mo., for years before it decided to enter the southern Illinois coal fields. The first step toward entering the mining territory was made in 1903, by the purchase of the Jacksonville & St. Louis, a bankrupt line, which extended from Jacksonville, Ill., 111 miles to Centralia. During the same winter, a 10-mile connection was built from the north end of the J. & St. L. to the Galesburg-St. Louis line of the C. B. & O. at Concord, 10 miles south of Beardstown, and in 1905, the J. & St. L. was extended south from Centralia to Herrin, 53 miles, and spurs were built to serve several mines. The further extension from Herrin to Paducah was built in 1910, to serve as a connection with the lines south of the Ohio river, although because of the proximity of the Kentucky mines, no coal moves south and this southern portion of the line serves only as a connection for merchandise traffic.

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All of the construction north of Herrin had in mind merely an entry into the coal territory, and the fact that the Burlington now had a line of its own into the coal fields did not mean that its problems were solved by any means. There still remained the problem of handling the coal economically, the solution being heavier trainloading than was possible on the existing lines. After a study of the cost of production at the mines, and of the rail-water rates via the lakes, it was found that, to sell the coal on a competitive basis in the Twin Cities, the highest freight rate possible was \$2.10 per ton, Herrin to St. Paul, 648 miles, or 3.2 mills per ton mile. The condition of the line was such that the movement could not be handled efficiently at such a rate. In common with other railways of the vicinity, the J. & St. L. and the line of the Burlington to Galesburg were built with frequent grades of one per cent or over, against the northbound movement. Accordingly these lines were reconstructed and by realinement and grade reduction, a low-grade line with a maximum of 0.3 per cent grade was evolved. This was accompanied by a corresponding reconstruction of the line from Galesburg to Savanna, where a junction is made with the Chicago-Twin Cities line of the Burlington, which was already built to an 0.3 per cent grade north of Savanna.

This assisted the movement materially, particularly with regard to train-loading, which began the steady climb that has continued up to the present time. More efficient handling brought more business, so much business, in fact, that it over-taxed the single-track line. Accordingly, a second track was built, with two gaps, from Herrin to Galesburg, most of which was turned over to the operating department in 1917. One, and the most important, of the gaps occurred in climbing out of the Illinois river bottoms a few miles north of Beardstown, where heavy tonnage trains required the use of two helper engines. This was overcome in 1925 by the building of a low-grade cut-off between Frederick and Vermont, 19.6 miles, for the northbound loaded movement, which enabled the handling of the same tonnage north of Beardstown as was being handled south of that point. This cut-off marked the completion of the low-grade Herrin-Galesburg line, 261 miles.

Later developments in the coal rates were such as to prohibit the handling of coal into the Twin Cities from southern Illinois on a profitable basis, even under the increasingly efficient operation. By this time, however, a sufficient business had been developed to Chicago and

other Illinois points, and also to points in Missouri, Iowa and Nebraska, and the movement continued to be heavy.

The Coal Movement

Since the building of the line into the coal fields, the traffic has been built up, dependent largely, of course, upon the fluctuations of the coal industry. The heavier tonnage and elimination of stops permitted a prompt handling that was satisfactory to the shippers. The importance of the coal traffic is indicated by the fact that 92 per cent of the tonnage handled on the Beardstown

division originates on it.

The Burlington serves 52 mines in the southern Illinois field. Because of the exigencies of the moment in the coal industry, only such mines as have a low overhead cost are now being operated, and only 26 of the 52 mines are now in active production. Also, the traffic is seasonal, there being summer and winter peak movements, with intervals of light loadings between, the winter movement being heavier than the summer movement. The largest day's traffic in recent years was on March 30, 1927, when 1,570 cars were loaded, while the peak day in 1930 was January 23, when 1,039 cars were loaded.

Mine runs operate from Centralia to the mines, setting out empties and picking up loads, the principal runs of this nature being between Centralia and West Frankfort, 99 miles; Herrin, 104 miles; Christopher, 82 miles; and Ziegler, 94 miles, the mileage given covering the round trip in each instance. Switch engines are operated at each of these points to serve the mine loading tracks and to make up the trains for the run to Centralia. These switch engines average 16 hours continuous service daily. As a result of double-crewing, it was possible, in March, 1930, to close the engine terminal at West Frankfort, these engines now being serviced at Herrin, while the switch engines operating at both Christopher and Ziegler receive enginehouse attention at Christopher.

Coal from the smaller mines is brought in by shorter mine runs, or by local freights, which take merchandise and empties south, and bring back coal trains. The operations are so arranged as to get the coal moving by not later than nine o'clock on the morning following the loading. In fact, much of it is picked up and taken to Centralia during the day on which it is loaded.

The concentration point for this coal is at Centralia, the cars being classified and made up into outgoing trains at the yard there, this yard containing 53 miles of tracks, with a capacity of 2,400 cars. At Centralia, also, the



Loading Facilities at One of the Southern Illinois Mines

empties brought in from the north are separated into 12 classifications before they are moved to the mines. From Centralia, the trains are handled to Galesburg, with a stop at Beardstown yard to change crews and to cut out any bad orders or short loads there may be in the train. This yard has a capacity of 2,400 cars, and it is used principally for the classification of general freight. The crews operate on a turn-around basis between Beardstown and Galesburg, the Beardstown division coal crews operating over the Galesburg division from Bushnell to Galesburg and return.

A run observed on October 8-9 will illustrate the method of operation in detail. The entire run was made with M-4 engine 6326, which left Centralia at 4:20 a. m., October 8, with 121 empties, arriving at West Frankfort at 7:30 a. m. This engine left West Frankfort at 9:45 a. m., with 129 loads, 8,842 tons and arrived at Centralia at 12:45 p. m., making the 49.4-mile trip in exactly three hours, without a stop.

At Centralia, the engine was serviced and departed northbound at 3:20 p. m., with 122 loads, 8,817 tons. The train stopped for water at Litchfield, 56.6 miles, at 6:52 p. m., and departed at 7 p. m., arriving at Virden, 24.5 miles, at 8:15 p. m., where an hour's stop was made to permit the crew to eat and to take coal and water. Leaving Virden at 9:15 p. m., the train ran to Beardstown, 54.5 miles, without further stop, arriving at 12:25 a. m., October 9. There were no bad orders or short loads to set out, and the same engine, after servicing, departed with the same train at 2:25 a. m., arriving at Bushnell, 44.5 miles, at 6:20 a. m., where a stop was made for coal, water and meals. Leaving Bushnell at 7:15 a. m., the train arrived at Galesburg, 29 miles, at 9:30 a. m.

The same engine left Galesburg on the return trip at 11:15 a. m., with 29 loads and 38 empties, 1,920 tons, arriving at Beardstown at 2:45 p. m. It then left Beardstown at 4:45 p. m., with 125 empties, 2,500 tons, arriving at Centralia at 11:15 p. m., thus completing a trip of 513 miles. The running time with the tonnage train from West Frankfort to Galesburg, 255.5 miles, was 23 hr. 45 min. Deducting the necessary delays of 7 hr. 56 min. enroute, the running time totaled 15 hr. 49 min., or an average speed of 16.5 miles per hour. It may be mentioned that, during this entire trip, there was a conspicuous lack of rough handling.

The Motive Power

It will be observed that the same locomotive handled each of the various trains from Centralia to West Frankfort and return; Centralia to Beardstown; Beardstown to Galesburg and return; and from Beardstown to Centralia. The locomotives in this service consist of 18

Number of Freight, Mixed and Work Trains Run on the Beardstown Division in 1929

30 cars and under	First Six Months 1,738	Last Six Months 1.638
31 to 50 cars	1.807	1.139
		1.551
71 to 90 cars		1.038
91 to 110 cars		1.203
111 cars or over		2,754

Texas Type M-4, with a coal capacity of 27 tons, and tenders with a water capacity of 21,500 gal., and 16 M-2 type, with a coal capacity of 20.8 tons and a water capacity of 12,000 gal. The M-4 type locomotives were built after an operating and a mechanical department man were sent together to two widely separated railroads to study heavy tonnage there, and the engines incorporated the best features of design looking toward heavy tonnage handling. The runs as above described insure the maximum utilization of the M-4 locomotives, which were put in service in May, 1929, and have been

a potent factor in increasing the tonnage. The effect of these locomotives on train length is indicated by the table, which shows a comparison of the first six months of 1929, before the engines were in general use, and for the last six months of the same year, when their effect was making itself felt.

These locomotives have a tractive power of 90,000 lb. and weigh 353,820 lb. on the drivers, the total weight of the engine and tender being 897,910 lb.

Eliminating Stops

The coal capacity of 27 tons and the water capacity of 21,500 gal, on the new locomotives have been important factors in eliminating stops, which is of paramount importance if heavy tonnage trains are to be handled efficiently. For example, under normal operations, the 8,800-ton trains run through from West Frankfort to Centralia, 49.4 miles, without stopping for any purpose whatever. This, however, has not been the only factor in avoiding delays.

The Beardstown division, angling across Illinois, encounters an unusual number of crossings with other lines. There are 24 crossings at grade between West Frankfort and Bushnell, 228.5 miles, or an average of one every 10 miles. These are all equipped with interlockers, except three crossings with comparatively light traffic branch lines. Spring switches are also provided at the entrance to the double track and at other places to eliminate stops for throwing switches.

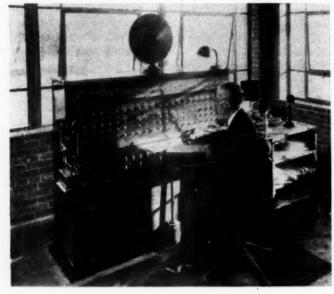
Careful attention is paid to the avoidance of hot boxes, not only by preparation of the empties before they are sent out for loading, but also by a staff of car oilers in the field. A continuing campaign is also being waged against rough handling. That this is successful is indicated by the fact that an average of less than four drawbars a month are pulled out of these trains.

Two first-class trains a day in each direction are operated over most of the territory in which the coal trains operate. These passenger runs are taken care of by rail motor cars, and it is most unusual to stop the coal drags for them, the motor cars being operated against the current of traffic to run around the coal trains, such movements being handled by train order only.

Another deterrent to heavy train loading is the difficulty of operating with full tonnage in the winter time. The deep cuts on the Vermont cut-off, in particular, are trouble makers, since the frost gathers there and remains until late in the morning, thus causing an extremely adverse rail condition, with the result that trains have frequently stalled. This trouble, together with all difficult rail conditions brought about by weather, has been eliminated by a device perfected by the division officers whereby hot water, drawn from the boiler, is sprayed on the rails. This expedient enabled the Burlington to maintain its tonnage rating during the winter without having the heavy trains stalling on bad track.

A superintendent at Beardstown, with an assistant superintendent at Centralia to look after the mine runs, and two trainmasters, supervise the operations. No small part of the uniformly excellent performance results from the fact that no "boomer" is employed on the division at any time, despite the fluctuations in traffic which sometimes make necessary a reduction in force of as much as 50 per cent. The employees, and the officers as well, were all born and raised within 50 miles of the division. When the force is cut, many of the men return to the farms. Also, the industrial situation in the vicinity is such that the outside companies need additional force at the time of the year when the railroad traffic is light. The result is that a trained and experienced force of loyal employees is available at all times on 24 hours' notice.

Centralized Installation on B. & M.



The Control Machine at Winchester

Train movements are facilitated and operating expenses reduced by closing interlockings

By E. N. Fox
General Signal Inspector,
Boston & Maine

Controls Four Junctions

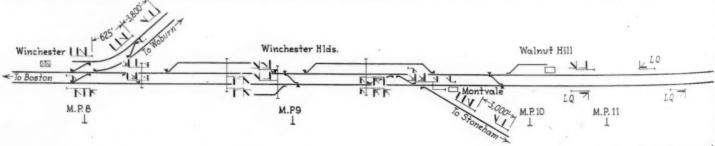


Map with Control Territory Shown Heavy

N the vicinity of Winchester, Mass., on the Boston & Maine, three mechanical interlocking plants and one layout of switches, bolt-locked with mechanical ground signals, together with the intermediate semaphore automatic block signals on 17 miles of line, have been replaced by a Union Switch & Signal Co. centralized traffic control signal system. This installation is on a main line of the Boston Terminal division, which connects with the New Hampshire division. Winchester, the southern end of the controlled territory, is 7.8 miles from Boston, while Wilmington, the northern end, is 7.4 miles north of Winchester. Including the approach territory, the new work extends over 10.3 miles of main and 6.7 miles of branch lines.

At Winchester a double-track branch, called the Woburn loop, diverges from the main line, follows a rather tortuous course through suburban territory, and rejoins the main line at North Woburn junction. Two of the old interlocking towers were located at these junctions. The third was at Montvale, 1.9 miles north of Winchester, from which point a single-track branch extends to Stoneham, 2.4 miles distant. A 3.2-mile single-track line extends between Wilmington and Wilmington Junction, to provide a connection from the west route of the Portland division to the New Hampshire route of the Terminal division. At Wilmington, the switches were handled by ground switchmen, protection being provided by ground-operated mechanical signals bolt-locked with the switches.

The topography of the country is that of a typical eastern Massachusetts region of low hills, resulting in numerous curves but no severe grades on the main line, although the Woburn loop and Stoneham branch have maximum gradients of 1.05 per cent and 1.40 per cent,



Track and Signal Plan of

respectively. The main-line track is practically all laid with 100-lb. rail and rock ballast.

Traffic

As the territory is close to Boston, there is a heavy suburban traffic, especially during the morning and evening rush hours. Most of these trains run via the Woburn loop; a few terminate at Woburn, but more run through to either Wilmington or Lowell. Traffic on the Stoneham branch consists of passenger trains during the morning and evening hours, and a local freight during the day. The main line handles the through passenger and freight traffic between Boston and the major part of the state of New Hampshire, most of Northern Vermont, and a considerable portion of the province of Quebec. It forms part of the route traversed by the "Alouette" and the "Red Wing," day and night trains between Boston and Montreal via the B. & M. - C. P.; and the "Ambassador" and the "New Englander," corresponding trains between the same points, running via the B. & M. - C. V. - C. N.

Entrance to the new Boston terminal classification yards is at Mystic junction on this same main line six miles south of Winchester. Accordingly, all through freight trains from the Portland division are diverted at Wilmington Junction to the connecting Lawrence branch and brought in at Wilmington to run through Winchester. Thus, most of the Boston bound freight originating in Maine, New Brunswick and Nova Scotia, delivered to the B. & M. by the Maine Central at Portland, is handled over this line also.

Table Showing Traffic on Ordinary Week Day, Not Including Switching Movements

	Passenger Trains	Freight Trains	Total	
Winchester (Main line	38	20	58)	
(Woburn loop	44	2	461	104
Montvale Main line	30	20	50)	
Stoneham br.	8	2 .	10	60
North Woburn Jet Main line	30	20	50)	
Woburn loop	30	0	301	80
Wilmington Main line	42	16	58)	
(Law. br. and eng.	house 18	4	225	80

New System of Operation

Certain track changes were made in connection with the new system, such as installing new crossovers to provide for reverse running, and also lengthening some of the existing crossovers. All new main-line crossovers are No. 20, this now being standard on the Boston & Maine; No. 20 turnouts were also installed to replace five existing switch layouts.

As can be seen from the track layout, this installation consists primarily of four interlocking units with signaling provided for either-direction operation on both tracks between Winchester and Montvale, and either-direction operation of the southbound main track between North Woburn Junction and Wilmington, the control of all of these functions being centralized in one machine at Winchester. The control machine is in a new one-story brick tower, located on the station grounds at Win-

chester, this location being chosen with the thought that eventually the territory might be extended southward to Mystic Junction, in which event the machine would be nearly midway between the two ends.

As the Winchester interlocking is located near the control tower, this unit is operated by a direct-wire remote-control scheme, while the other three interlocking units, Montvale, North Woburn Junction and Wilmington, are controlled by the new U. S. & S. code system. However, the control is all in the one machine, and, so far as the appearance or operation of the machine is concerned, there is no difference between the two



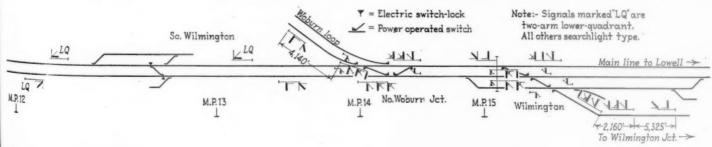
The Signal Bridge at Wilmington

types of control aside from the fact that no "code-operating" or "code-indication" light appears when the Winchester units function.

The vertical panel of the control machine contains, reading in horizontal rows from top to bottom, the track model, the switch indication lights, switch and electric switch-lock levers, the signal indication lights, the signal levers, the "call-on" signal buttons, and the starting buttons.

The apparatus permits selecting between 81 "stations," a station consisting of one switch or crossover, one set of associated signals, a call-on signal, one OS indication, and one approach indication. However, combinations of a greater or less number of stations can be had, if desired. Any lever can be thrown at any time, this being an all-relay interlocking with no mechanical locking whatsoever. The locking formerly provided by locking bars and dogs is now furnished by carrying the proper circuits through various relays in the field. Special circuit precautions are taken to guard against improper operation that might be caused by crosses, grounds, or failure of relays to function.

The operation of this type of machine is considerably faster than ordinary interlockings, inasmuch as it is not necessary to wait for indications on either switches or



Centralized Control Territory

Plan of

signals. As soon as the towerman has lined up a route and punched out his starting buttons, he can turn his attention to another section of the board, secure in the knowledge that his route will automatically "come in" as soon as conditions permit. Even while a train is still traveling over the switches of one route, it is possible to line up for the next move. The rapidity with which the units operate and indicate is surprising. To reverse a switch, clear the signal over it, and receive the indication back that the apparatus has functioned, requires only six seconds at any of the code locations, irrespective of how many miles away the operated functions may be. direct-wired units at Winchester act even quicker, taking three seconds.

Directly in front of the operator there is an automatic "OS" chart, or train graph, which automatically records the time that a train enters and leaves each approach section, and each track circuit within the territory between opposing home signals. It is operated by a clockwork mechanism having a driving speed of about 3 in. per hr., and when a train enters a track circuit the recording pen moves 1/8 in. to the right, producing an offset line in that location until the train has left the circuit. The chart has proved useful in checking against late or delayed trains, as well as providing a permanent record.

In the controlled territory, there are three main-line crossovers which ordinarily are used only once or twice a day for movements made by local way freights. was not economically advisable to operate these from the machine, but electric switch-lock protection has been provided under the control of the towerman. When the use of any of these crossovers is desired, a trainman calls the tower on the telephone, and if the towerman has no conflicting move, he operates a lever on the machine to release the switch. Similarly, there are three switches leading from the southbound main between Montvale and Winchester which are electrically locked by a lever, so as to prevent any train on these sidings from coming out onto the main except under the towerman's jurisdiction.

The train dispatcher for this territory is located in Concord, N. H., 66 miles north of the control station at Winchester. Telephone dispatching is used and the towerman is constantly cut in on the dispatcher's phone line by means of a loud speaker. By following the business over the phone wires, the towerman is kept posted on any irregularity of train movements.

Field Apparatus

Searchlight signals, which are now standard for all new work on the Boston & Maine, were used throughout the installations. For an automatic block signal acting also as an approach signal to a home interlocking signal, a two-light staggered signal is used, the 13-in. stagger telling the engineman that the next signal is a home interlocking signal at which he must see three lights. For bridge signals, all units are mounted above the bottom chord and over approximately the right end of the The type of signal bridge used for the past two years on the Boston & Maine, as shown in the photographs, was carefully designed to produce maximum strength with a minimum of weight.

The switches are operated by electro-pneumatic movements, compressed air being provided by two National Brake and Electric Co. Type SVC compressors at each of the four interlocking units. These compressors are small, requiring only 40 in. by 24 in. floor space, and are 24 in. high. One compressor cuts in when the air pressure falls to 55 lb., and the second cuts in at 45 lb. Each set of compressors with the electrical control equipment is housed in a small portable steel building, roughly 8 ft. by 8 ft. by 8 ft. in dimension.

At the lower left side of the operating panel of the control machine at Winchester four pairs of red and green lights are provided, one pair for each of the four interlocking locations. Normally four green lights are to be seen. If, however, the source of electric power should fail at any location, or if the air pressure should drop to 42 lb., due to both compressors developing trouble simultaneously, the green light for that location will change to red, and the fact will be audibly announced by the single-stroke bell, whereupon the towerman should promptly notify the maintainer. Reserve batteries on floating charge, and storage air tanks provide ample capacity for operating the plant until the maintainer can reach it.

The installation was placed in service in three stages, at intervals of about ten days apart; Winchester and Montvale were first, followed by North Woburn Junction and then Wilmington. The railroad furnished the concrete materials, furnished and installed the insulated joints, rail braces, gage plates, switch timber and track bonding, and did all the pole line work. The storage batteries were furnished by the Electric Storage Battery Company, while the remainder of the material, with a few minor exceptions, was furnished and installed by the Union Switch & Signal Co.

Who Killed 15a?

By Harold F. Lane

Washington Editor, Railway Age

WASHINGTON, D. C.

ECTION 15a, the heart of the Transportation Act of 1920, is dead. Long live the new Transportation Act of 1931, 1932, or 1933, as the case may be! No date has been set for the funeral and Congress has not yet been officially advised of the fact, although Senator Couzens, as chairman of the Senate committee of interstate commerce, was given the information in the letter addressed to him on January 21 by Commissioner Joseph B. Eastman on behalf of the Interstate Commerce Commission.

How soon the commission's recommendations for a successor to 15a may be acted upon is, of course, uncertain, but every day seems to bring closer the prospect of an extra session of Congress, which probably will be avoided but which might afford an opportunity, and at any rate it now seems inevitable that the matter will continue to press for Congressional attention until something is done about it. Congress has not in the past distinguished itself for alacrity in following the commission's recommendations and we believe it took several years to bring it around to the commission's view that there should be a valuation in the first place, but as far back as 1923 the commission made a mild suggestion in its annual report that the valuation act of 1913 (now section 19a of the interstate commerce act) be amended to provide for bringing basic valuations up to date by adding or subtracting net property changes, without the necessity for revaluation from time to time. At that time the commission admitted that such a plan might raise constitutional questions but now a majority of its members think it can get around such questions by proposing to use a percentage return on a rate base only as a "barometer" rather than as a compass. Such a plan should prove rather popular with Congress, especially one with a Democratic-Progressive majority, which will of course be glad to repeal the iniquitous although non-existent "guaranty" of 534 per cent.

Of course they will lament the recapture clause, but as it has been almost equally non-existent and as the 1920 Congress carefully fixed it so that it could not well be used, perhaps it will be found that they have not had

much opportunity to become attached to it.

The commission's recommendations so far do not seem to have aroused much of a reaction on Capitol Hill, but Congress has its hands fairly full just now trying to show the drought-stricken farmers and the ex-soldiers that Hoover, with all his reputation, is only a "piker" when it comes to distributing relief funds, and it may be some time before it gets around to considering legislation.

Many people will shed a tear for Section 15a, particularly those who have invested their money on the strength of it, although they have had some time in which to prepare themselves for the worst, but when the body charged with the administration of the law says three times in its report that the railroads have never been able, since 1920, to obtain the aggregate earnings contemplated by Section 15a, speaking of a period in which for most of the time circumstances have been far more favorable for its application than the present, it seems rather late to believe it can be revived.

The commissioners were not quite so explicit as to point out that the recapture clause is also, and has been for about a year and a half, just as dead as the rest of 15a, possibly because the House appropriations committee had just recommended and the House has now passed another appropriation of \$3,554,368 for valuation work on the ground that the commission might get some of it back by recapture. This failure to report the demise of the recapture clause in connection with the recommendation that it be thrown overboard may have been the reason so many newspapers treated the commission's statement as a proposal for more generous treatment of the railroads hereafter. However, the fact appears to be that the recapture died a violent death on May 20, 1929, the day the Supreme Court of the United States held that "fair value" is something more than an estimate of approximate investment, and it begins to look as if the commission were seeking a place to bury the corpse.

The rate-making rule of Section 15a has shown few signs of life since it was given a short run in 1920, and then abruptly thrown into reverse in 1922, but the recapture clause, although given many more chances to make a name for itself and even to show its teeth on numerous occasions, has actually attempted to use them but once, in the O'Fallon case. And it turned out then that they had tried to bite off more than they could

chew.

It is true that the recapture clause once received the blessing of the Supreme Court as one of the instruments through which the Interstate Commerce Commission was to exercise its "fostering care" over the railroads, but that was before it had even shown its teeth, although the Dayton-Goose Creek Railway had been led to believe it intended to. Also a number of other roads, either convinced of its benevolence or afraid of the teeth, have paid over some \$10,000,000 to the commission under protest.

Congress had begun to lose some of its interest in the valuation on which the commission has been engaged since 1914, and for which it has now appropriated some \$39,000,000, when its attention was called three or four years ago to the vast possibilities of recapturing several hundred thousand dollars of alleged net income above 6 per cent on the still nebulous valuation. The valuation appropriation was boosted back to about three million dollars annually again and much of the money devoted

to bringing up to date the valuations of a list of 298 railroads that in some one year since 1920 had apparently succeeded in earning more net than the average road. Some one in the commission's organization estimated at one time that \$254,000,000 might be recovered from these roads, with adequate appropriations. It now appears that the estimate was made on the O'Fallon basis, and under the influence of another estimate that the Supreme Court was becoming weary of reiterating that it is the value of a property, not the dollars originally expended to produce it, that is of interest, and that the court was about due to change its mind.

Since then the commission has made public a lot of tentative or proposed recapture reports, by its Bureau of Valuation or by Division 1, attempting to comply with the court's decision by giving 50-50 weight to estimates of original cost and of reproduction cost, both less depreciation, but the commission has not yet passed on them. Some of these reports were apparently hurried up because the roads had been abandoned after having their profitable year or so, and there was some fear that the assets might be dissipated, while in other cases the excess of one or two years might be consumed in meeting later deficits.

Presumably the commission will have to decide something on these reports before Congress gets around to acting on its recommendation that the law be repealed because it has not been able to raise rates high enough to produce much excess income unless the courts will let it hold down the value. Of course, if the value is held down sufficiently, there will be no particular occasion for having a recapture fund, especially as no one seems to have much idea what to do with one under the existing law.

If anyone wants to know who killed Cock Robin a plausible argument might be made out to the effect that this very recapture clause did so while committing suicide

Recapture was proposed in the first place to make it easier for Congress to swallow what then looked to some like a "guaranty" in the rate-making rule, although some visualized it as an equalizer. Then there was the idea that recapture would soon disappear within the consolidated systems into which the strong roads were to absorb the weak. But when the commission found itself unable either to formulate an ideal consolidation plan of its own or to approve some of those proposed by others, and also convinced itself that rates made to comply with 15a would not be "reasonable," but still insisted on enforcing the recapture clause, which did not include the words "as nearly as may be," the latter assumed a self-importance under which it seems to have swelled up and burst, because recapture seems to require new valuations each year.

The new rule of rate-making proposed by the commission, although undoubtedly representing distinct progress as compared with that of the Howell bill, seems capable of being boiled down to a direction to make the "lowest possible rates consistent with adequate transportation service," sufficient credit for the railways being considered necessary to the attainment of that end. This is not much different from the language in the Hoch-Smith resolution which told the commission to try to go easy on the farmers, but which the Supreme Court held meant no more than the rule of Section 1 that rates shall be just and reasonable. The commission is to keep before it, possibly on the wall of its conference room, a barometric record of the percentage earned on the rate base, which it is to observe from time to time over a period of years, adjusting the percentage, perhaps, as even a barometer must be corrected for temperature, but not necessarily regarding it as a "reason for raising

or reducing rates.

It is understood that the commission has, at least for some years after 1920, maintained such a barometric record, for its own information, of the monthly percentages earned on its tentative valuation of 1919 as adjusted for later additional investment, and that these percentages have ranged something like one-half of one per cent above the monthly figures published by the Bureau of Railway Economics based on property investment. Even on this basis the roads as a whole have never attained 53/4 per cent while the roads and the commission have failed to agree as to what rates should be raised or lowered.

The original Howell bill has almost passed out of the picture, its only remaining advocate being Donald R. Richberg, who is understood to have written it, but the commission has set up something in its place that will certainly have to be reckoned with sooner or later, particularly as it comes so close to representing the views expressed by the National Industrial Traffic League and the state commissioners' association. For this reason there has been much speculation as to how much the commission's suggested plan would change the situation

that has existed for many years.

In an address in January, 1920, while the transportation act was still under consideration, Director General Walker D. Hines said: "I believe there must be a definite standard by which the reasonableness of the general rate level can be measured. In the past there has been no appreciable standard. Plausible arguments could be made against any increase that was sought under any conditions. The rate-making body had to take all the responsibility and odium of creating a standard as well as applying it. In my opinion Congress itself should establish a general but workable standard and leave to the rate-making body the application of this standard according to the facts."

Undoubtedly that was the general idea behind the adoption of Section 15a in the minds of all of its "wishful thinking" advocates. Yet the law as passed left to the commission not only the duty of passing upon the reasonableness and discriminatory character of rates as before but it left to it the duty of prescribing the percentage and the valuation which were to govern it in adjusting rates, and did not say specifically whether its percentage was to be a maximum or an average.

Apparently the commission would now prefer the "odium and responsibility" to which Mr. Hines referred to that which might have come to it if it had ever taken

Congress at its word.

However, the question still remains as to whether that would have caused it any more criticism than would a suggestion on its part that its barometer should show, say, 7 per cent, on the rate base. And while some railroad officers may object to swapping 15a for such a plan as its substitute without some Congressional direction as to what the barometer ought to be expected to show, others undoubtedly would prefer the general language proposed without any reference in the law to a percentage or a rate base which they would consider too low. In other words, if the rate base is to be considered an important factor they would want to be certain that it is high enough, and if it is not to be so considered why have one at all?

THE CHICAGO & ILLINOIS MIDLAND has proposed to take over that portion of the old Chicago, Peoria & St. Louis between Springfield, Ill., and Lock Haven provided no one else wants the road and if money is available to take up deeds for land.

M. P. and L. & A. Joint Trackage Rights

HEARING before representatives of the Interstate Commerce Commission on the application of the Missouri Pacific and the Louisiana & Arkansas seeking approval of a trackage contract involving 130 miles of line and a bridge across the Mississippi river at Baton Rouge, La., was held in that city on January 27 to February 3. The contract provides for a joint use by the M. P. and the L. & A. of the latter's tracks between North Baton Rouge and New Orleans, for the joint use of the L. & A. and the Texas & Pacific of the latter's lines between Torras and Anchorage; for the joint use by the M. P. and the T. & P. of the latter's lines from Ferriday through Torras to Anchorage; for the joint construction of a bridge over the Mississippi river at Baton Rouge by the M. P. and the L. & A., the former paying two-thirds of the cost and the latter onethird; for authority to operate a ferry service in lieu of the bridge in case of any difficulties in bridge construction; and the joint use of such lines as may be necessary for the complete interchange of traffic.

One of the first witnesses to take the stand was L. W. Baldwin, president of the Missouri Pacific, who testified that New Orleans is the natural outlet for the traffic of a large area of the Mississippi valley, most of which is served by the Missouri Pacific, and that he saw no practical method of acquiring industrial properties and building up industries along the lines in New Orleans under present conditions. He also stated that subsequent to acquiring the Gulf Coast Lines, the M. P. had made a study of a better entrance into New Orleans and as a result of these studies was convinced that the road would be justified in building a bridge at Baton Rouge and a line from Baton Rouge to New Orleans and thereby reduce the amount of business which must be handled over the car ferries at Gouldsboro and at the same time reduce the distance into New Orleans from all points on the M. P. The plan, he said, will result in a much more expeditious delivery of local, export and coastwise traffic through the Port of New Orleans with a possible saving of as much as 24 hr. and will greatly reduce the terminal expense in

Huey P. Long, governor of Louisiana, stated that approval of the contract is necessary to the welfare of the state's rail, vehicular and water transportation. He said the combination of the L. & A. and the Louisiana Railroad & Navigation Company has been of considerable value to the state, but there is now a growing problem of maintaining these roads. The territory through which these roads pass, he continued, is largely cut-over land, although they traverse some of the river bottom lands and in order that the L. & A. can continue to exist, help must be secured. He also stated that if the L. & A. is not permitted to enter into the contract, which makes available a bridge for \$2,500,-000 and provides half the cost of improving its lines from Baton Rouge to New Orleans, it will have to put up the whole \$7,500,000 for the bridge and improve its lines itself or go out of business and leave a large portion of the state without railroad facilities.

H. C. Couch, president of the L. & A., testified that the provisions of the contract are necessary for the development of his road. The arrangements, he said, will enable the L. & A. to finance its property on more

(Continued on page 332)

Giving Permanency to Timber

Wood preservers note progress in increasing life of ties and other wood in railway service



Approximately 100 Members from the West Inspected the Green Spring, W. Va., Plant of the Baltimore ${\cal G}$ Ohio En Route to the Convention

HE outstanding progress which the railways are making in giving to timber a life that entitles it to consideration as a permanent construction material was shown in several papers presented at the twenty-seventh annual convention of the American Wood Preservers' Association at Philadelphia, Pa., on January 27-29. Of special interest were papers on Twenty-One Years' Experience with Treated Ties on the Lehigh Valley by C. B. Musselman, chief treating inspector of that road at Bound Brook, N. J.; on The Diversity of Use of Treated Timber, by R. S. Belcher, manager treating plants, Atchison, Topeka & Santa Fe, Topeka, Kan.; and on The Use of Treated Timber in Construction, by F. O. Dufour, consulting engineer, United Engineers and Constructors, Inc., Philadelphia, Pa. The first and last of these papers are abstracted below while that by Mr. Belcher will appear in a following issue. The meeting was largely attended, the registration approximating the previous high record. C. C. Cook, maintenance engineer, Baltimore & Ohio, Baltimore, Md., presided over all sessions as president of the association.

At the closing session of the convention John S. Penney, vice-president, T. J. Moss Tie Company, St. Louis, Mo., was elected president; Elmer T. Howson, western editor, *Railway Age*, Chicago, first vice-president; R. S. Belcher, manager treating plants, Atchison, Topeka & Santa Fe, second vice-president, H. L. Dawson, secretary-treasurer (re-elected), and F. C. Krell, forester, Pennsylvania Railroad and R. S. Manley, president Texas Creosoting Company, Orange, Texas, directors

Shortly after calling the convention to order, Mr. Cook summarized the work confronting the organization in the statement that a "reduction of supply in woods of superior quality necessitates refinement of action in the preparation and treatment of the kind of timber next found most durable. In treated timber, relative durability is not inherent alone in the structure of the wood. Seasonable cut, proper seasoning and right treatment may easily render woods relatively in-

ferior and of a less desirable grade more serviceable than other normally more-durable timbers which have been subjected to less intelligent treatment. And the exhaustion of these superior woods does not cause alarm in the knowledge that the art of handling and treating timber is thus wisely developed and improved to the end that relatively inferior woods are made to give equal and even superior service and economy."

Many Subjects Discussed

The program included many reports devoted to refinements of treating practices intended to increase the thoroughness and reliability of treatment. Of special interest was a report presented by the Preservatives Committee on high residue creosote oils, dealing with a problem that is giving serious concern on certain roads which are using creosote-petroleum and creosote-coal tar mixtures. This report traced the changes that have occurred in the amount of residue in creosote oil as the proportion of domestic production has increased and indicated that exhaustive studies will be undertaken to ascertain the relation between the oils used heretofore and the service life secured from timber so treated. Believing that high-residue oils are less toxic, several roads have recently introduced into their specifications provisions restricting this residue. The proposed study is to determine the necessity for this action.

A Committee on the Processing of Wood, headed by A. W. Armstrong, president Ayer & Lord Tie Company, Chicago, was concerned primarily with the fire-proofing of wood. As a result of investigations indicating that many problems in this field still remain to be solved, the committee on June 10, 1930, recommended to the Executive committee of the association the initiation of a general research in this field. Plans for financing this undertaking are now being considered in collaboration with the National Lumber Manufacturers' Association.

In a brief report, the Committee on Posts, of which Frank McCrory, chief tie inspector of the Chicago, Rock Island & Pacific, was chairman, called attention to the need of care in the handling of treated wooden posts. It cautioned against rough handling, driving them in the ground and unnecessary pounding in the application of staples. While it suggested that dry vegetation should not be allowed to accumulate around them, it also presented evidence to show that ordinary grass fires do no harm, even if repeated year after year. Among the other reports presented were those dealing with the pressure and non-pressure treatment of poles, pole service records, preservatives and a brief initial report of a newly formed committee on Bridge and Structural Timber. The latter committee outlined a program for the compiling of data on the service life of treated wooden bridges and similar structures. It also submitted instructions for the handling of treated bridge material in the field.

J. D. McLean, senior engineer, Forest Products Laboratory, Madison, Wis., presented a paper on experiments which have been in progress since 1911 on the effect of various preservatives and treatments in increasing the resistance of woods to attack by marine borers. The work consists largely of tests carried on in Gulf waters in co-operation with the Louisville & Nashville and the Gulf & Ship Island.

Meet Obstacles in Treatment of Car Lumber

The Committee on the Treatment of Car Lumber, headed by J. R. McGrenera, general tie and timber inspector, Atchison, Topeka, & Santa Fe, presented a report that outlined some of the obstacles in the way of efforts to promote the use of treated wood in car construction and repair. The committee recommended that a committee be appointed, of sufficient size that it may be divided into sub-committees, each to be assigned one class of equipment for study.

Instructions should specify that sufficient time should be taken by each sub-committee, in conjunction with the Mechanical division of the American Railway Association, and with committees of other associations concerned, to set up a list including every item of wood now used in car construction. After due consideration has been given to the durability of untreated members and the possible contamination of lading if non-durable members are treated, recommendations should be made as to which members can or should be treated, the preservatives to be used, and the methods by which they should be applied.

By the time this investigation is completed most of the wooden-framed cars should have disappeared. However, there should be many old cars of practically wooden construction still in service, requiring posts, braces, nailing stringers and fillers, all of which, in some classes of equipment, could be treated with some preservative to advantage. Therefore, the committee recommended that the association sponsor open-tank, brush or spray treatment for such members, because at the present time the lack of pressure-treating facilities adjacent to car-repair shops, is preventing many interested roads from using any sort of treatment. Some roads are now using paint and other agents in unsuccessful attempts to lengthen the life of wooden members that decay in spots, but they do not feel warranted in spending the amount necessary to treat the entire

Report on Tie Service Records

The Committee on Tie Service Records, of which W. R. Goodwin, engineer of wood preservation, Minneapolis, St. Paul & Sault Ste. Marie, was chairman, presented an extension of its table of annual tie renewals on 27 representative roads. This table is presented in summarized form below. Tabular reports were presented also relative to test tie track sections on eight different railways.

		als per Mile f Track
Road	1929	Five Year Average
A. T. & S. F	165	135
B. & O	152	177

C. B. & Q	159	156
C. & E. I.	120	112
C. C. C. & St. L	91	108
C. M. & St. P. (Eastern lines)	282	248
C. R. I. & P.	151	146
D. L. & W.	79	92
G. N.	212	209
	212	189
I. C.		
K. C. S	152	141
L. V.	48	74
M. C	102	135
M. K. & T.	216	229
C. I. & L.	125	124
N. Y. C. (East)	140	158
N. Y. C. (West)	74	91
N. P	146	152
Penna	143	174
M. St. P. & S. S. M	236	278
S. P. (Atlantic System)	206	224
S. P. (Pacific System)	191	217
U. P.	150	186
C. R. R. of N. J.	79	86
	135	161
Reading		274
M. P.	260	
C. & O	183	249
Average—27 railways	170	180

The Use of Treated Timber in Construction

In a paper tracing the ramifications of the present and possible future uses of treated timber, F. O. Dufour, consulting engineer, United Engineers and Constructors, Inc., Philadelphia, Pa., pointed out the large savings in timber acreage effected by the preservative treatment of wood. In 1907, he pointed out, approximately 25,000,000 acres were required to produce the cross-ties purchased, whereas in 1927 only 17,000,000 acres were required, or some 8,000,000 less acres than in 1907. This decrease was due very largely to preservative treatment, which resulted in the increased life and service of the used ties.

The annual production of material which could be creosoted is approximately 42,000,000,000 board feet, of which lumber and sawed ties comprise 90 per cent and hewed ties 5 per cent. A large portion of the lumber is used for purposes where it is unnecessary or uneconomical to treat it. Yet since the total of timber treated in the United States in 1929 was 4,400,000,000 board feet, or about 10 per cent of that possible, it is evident that there is abundant opportunity for a substantial increase in the use of treated timber.

That the use of treated timber other than track ties is on the increase is indicated by the fact that one large railroad used 42,000,000 board feet last year, or 46 per cent more than in the previous year. Two large systems used about 60,000,000 board feet for purposes other than track ties in 1929.

A great advantage of a treated timber structure is that it can readily be added to or remodeled and in case it becomes obsolete the salvage value is high. The use of wood also allows work in low temperatures without special provision. The disadvantages are in the case of some treatments, odor, liability to soil objects coming in contact with it and difficulty in retaining a presentable coat of paint. The odor has never been very objectionable, soiling can be taken care of by encasement or veneering and some success has been had with special paints; so that it is probable that the problem will be solved.

Large quantities of creosoted timber are used for trestles, both open and ballast-deck, and the field has not been much more than scratched. There are a number of trestles now in use on various railroads that have

been in service from 24 to 30 years and have required little or no maintenance except that due to strengthening on account of increased loading. The deterioration due to decay has been small, and much of this decay has been caused by conditions due to overloading. Even this has been confined mostly to the caps crushing. Ballast-deck trestles and ballast-deck steel bridges offer a wide field for the increased use of treated timber. Treated timber culverts have been in use for 28 years and have shown no sign of deterioration except a little decay at the end of the stays which had been sawed off in the field and not properly treated.

The Lake Pontchartrain trestle of the Southern railway, which is of treated timber, has been in service for 48 years in a sub-tropical climate with an annual rainfall of 56 in., where untreated timber usually lasts less than 4 years. Yet, less than 3 per cent of the original material has been removed from the structure because of decay. In 1911 the structural engineer of the Valuation division of the Interstate Commerce Commission estimated the remaining life to be 35 years and the total life 73 years. It is the belief of the speaker, who has inspected a great number of treated timber structures, that with the methods of treatment and care in handling and construction that we have today, properly treated timber, other than track ties and structures subjected to considerable abuse from overloading, will have a life of from 50 to 75 years.

The decision as to whether to use treated timber is an economic one. The season of construction, the construction schedule, the design, the location, the use to which the structure is to be put, the life of the structure, the salvage value, the ease with which the capacity can be increased, and indirect costs as well as the direct cost and the maintenance, are some of the more important factors to be considered.

Why Tie Renewals on the Lehigh Valley are Small

In 1929, the tie renewals averaged 48 per mile of all tracks. It is estimated that the corresponding figure for 1930 was about 58 ties. This enviable record is not the result of accident, but represents the consequence of a consistent policy of tie conservation which has been observed for 21 years. The practices of the Lehigh Valley, that were responsible for these results were reviewed in a paper presented by C. B. Musselman, chief treating inspector of that road, which is abstracted below.

In 1909 the Lehigh Valley signed a contract for the preservative treatment of its track ties, switch timbers, bridge ties and other forest products. During the period from 1909 to 1919, straight creosote oil, principally foreign oil, was used. From 1919 to 1924 a solution of 80 per cent Grade 1 creosote oil, and 20 per cent coke-oven coal tar was used in the treatment of all material except piling and bridge ties, which were treated with straight creosote oil. From 1924 to the present time we have used a solution of 70 per cent Grade 1 creosote oil and 30 per cent coal tar in the treatment of the major portion of our ties, switch timbers, bridge ties and other lumber. For our oak and pine piles we use a solution of 85 per cent creosote and 15 per cent tar for the oak and an 80-20 solution for the pine.

for the pine.

We have learned by experience that several important factors other than the preservative treatment enter into the question of the service expected and obtained from treated ties and other treated timber. If the inspection of the untreated ties is elack, no treatment or preservative will correct this fault. Treated rotten ties may have all the outward appearances of first-class treated ties, when as a matter of fact at least half of the years of expected service has been destroyed by decay. During this 21-year period, we have maintained a high standard

of inspection and will continue to do so. It is not good practice to leave ties piled along the right-of-way for any great length of time after they are inspected. We make it a practice to inspect all right-of-way ties very soon after they are delivered and insist that they be loaded and shipped to the treating plant on the day of inspection or within a week thereafter.

What Kind of Wood?

During the time we have been using treated ties, we have tried to base and regulate our purchases as to the kind and size on the results obtained from treated ties in service. We found that blight-killed chestnut did not produce a tie that would give the expected service; that hemlock ties did not take treatment readily; that ash and hickory ties checked and split badly both before and after treatment; and that the service obtained from such hardwoods as beech, birch and maple did not average up to that obtained from ties made from mixed oak and sap pine. With these facts at hand and considering the greatly reduced number of ties required per mile for proper track maintenance, we believe we are justified in limiting our present purchases to ties of oak and pine. By doing this we expect further to increase the years of service above the average we are now getting from our treated ties.

We also place a limit on the sizes purchased. At present on an order for main-track 7-in. by 9-in and 7-in. by 8-in. by 8-ft. 6-in. ties, we accept only 15 per cent of 7-in. by 8-in. ties, and for side-track and yard work requiring 6-in. by 8-in. and 6-in. by 7-in. ties, we accept only 15 per cent of 6-in. by 7-in. ties. We endeavor to use the amount of preservative that seems to offer the proper protection from decay, and to a certain extent we base the quantity of preservative on the expected years of service. In many cases we treat both ties and other materials to refusal.

Many Factors Affect Life of Ties

The service life obtained from treated ties is controlled to a great extent by the other track materials and by the track maintenance methods. There is no question but that the track structure must keep in step both as to size and quality with the advances made in transportation equipment. During the last 21 years we have made many changes in the strength of our track, and have made many improvements in our methods of track maintenance. In addition to using ties that average larger in size, since 1914 we have been using 20 ties to each 33-ft. rail as compared with 18 previous to that time.

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Early in 1916 the 136-lb. rail was adopted for use on main tracks and this weight of rail has continued in use to the present. Since 1925 the standard tie plate for our 136-lb. rail is a canted double-shoulder plate, 8 in. by 13½ in. by 29/32 in. In 1927 we adopted a canted plate 7 in. by 103½ in. by 3¼ in. for 100 and 110-lb. rail. The switch plates have been changed in type and increased in size from time to time. Rail anchors are extensively used on all main tracks.

For a number of years the demand for ties was met entirely by local purchases along the right-of-way. Over 90 per cent of these ties were sawn and for that reason we had little use for tie-adzing equipment. Owing to the rapid changes and variety of sizes of tie plates and rail in use, we were of the opinion that pre-boring the ties had little if any value from a track maintenance point of view. We are well aware of the fact that pre-boring does have a great value in so far as treatment is concerned, and as over 90 per cent of the ties now purchased are hewed, we are adzing and boring all of our ties before treatment.

During the period from 1910 to 1930 inclusive, we treated the following number of the various kinds of ties, all of which were furnished under our own purchase and inspection:

Southern p Hardwoods					5,771,261 1,125,160
Oaks (red,					1,691,506
Chestnut .				 	 101,934
Hemlock .					11,655
Ash					8,021
Tamarack	(Canadia	m)	***	 ******	 1,600
Total					9 711 137

Of the 8,711,137 ties treated since 1909, all but 181,364 have been placed in service. Of the total number of ties treated, less than one per cent could have been classed as suitable for use untreated. I can say without fear of contradiction that the average service of the entire 8,711,137 ties would not have been more than five or seven years, if they had been used untreated, as compared with an expected service of from 25 to 35 years or more for treated ties.

Reduction in Tie Renewals

During 1910 the total tie renewals per mile of track on the Lehigh Valley amounted to 177. The tracks in that year were

laid with as good a grade of untreated ties of white oak, rock oak, live chestnut and southern heart pine as was then obtainable. However, from 1910 the crosstie renewals per mile of track grew steadily in number, reaching a requirement of 289 ties in 1915. In the years following 1915 and up until 1929 there was a steady decline in the number of ties used per mile, reaching the unusually low figure of 48 in 1929 and the relatively low figure of about 58 ties per mile for the year just ended. To put it in other words, the tie renewals in 1929 were about 27 per cent of the 1910 requirements and about 17 per cent of those of the peak year 1915. The renewals for the year just ended were slightly under 20 per cent of the 1915 requirement.

The great reduction in the number of ties required for the yearly renewals has made it possible to make a like reduction in the number of treated and untreated ties carried in stock. In our case, the stock of treated ties has been reduced approximately 200,000 ties. With treated ties costing about \$2 each, this means a reduction of \$400,000. It can readily be seen also that the cost of labor to install 48 ties per mile should not be much more than 17 per cent of the cost of placing 289 ties, and for 58 ties per mile it should be about 20 per cent of the 1915

The installation of new ties in rock, sand, cinder or gravel ballasted tracks always means more or less follow-up work to get and keep the tracks in a first-class condition. The amount of roadbed disturbed per mile of track, based on the use of 3000 ties per mile is about 9.6 per cent for the installation of 289 ties, as against 1.6 per cent for the installation of 48 to 58 ties per mile. The use of treated ties, therefore, reduces the cost of track maintenance from that angle.

The following results show what we have obtained from the use of treated ties and timbers, coupled with improved laborsaving apparatus and improved methods of track maintenance. In 1918 the man-hours required for maintenance work were 11,629,549; in 1928, 5,675,413; in 1929, 5,590,042, while the manhours for 1930 will be under the 1929 figure.

Motor Transport Hearing at San Francisco

WRTHER testimony showing the effects on railway earnings of motor vehicle competition, the desirability of regulation of interstate motor vehicle operation, and the means by which the railways are attempting to meet motor vehicle competition, was taken by the Interstate Commerce Commission at San Francisco, Cal., January 27-28, at the scheduled hearing under Docket 23,400, Co-ordination of Motor Transportation. The hearing was conducted by Examiners Leo J. Flynn and Albert E. Stephan.

Paul Shoup, president of the Southern Pacific, was the first witness. Describing the large decrease in railway revenues, he said that the causes were the increasing use of private automobiles, the increase in the number of motor coaches and motor trucks operated, the increased tonnage moving through the Panama canal, and governmental development of inland waterways. Shoup estimated that 25 per cent of the decrease in Southern Pacific earnings has been caused by the competition of motor coaches and trucks. He contended that the railways should be permitted to engage in any type of transportation, and that motor carrier companies should be regulated in the same way as railways and should be subjected to the same rules. Mr. Shoup said that the Southern Pacific desires to co-ordinate railway and highway transportation, and to accomplish this purpose has established a service for freight which involves pick-up and delivery by motor truck and intercity movement by rail.

C. R. Harding, assistant to the president of the Southern Pacific, testified that he is also a vice-president of the Pacific Greyhound Lines, a motor transportation

company in which the Southern Pacific owns a one-third In order to meet motor vehicle competition. he said, the Southern Pacific has established reduced rates between certain points; but the rail carriers cannot maintain efficient service under present conditions, and uncertificated motor lines are menacing the regular motor vehicle lines as well as the railways. In response to questions of Examiner Flynn, Mr. Harding said that he considers combined train and bus service desirable. He testified that train service is uniformly faster than motor coach service between such points as Portland and San Francisco, and Los Angeles and El Paso, Tex. Harding said that he expected motor coach traffic to increase, and that any decrease in motor coach traffic during the past two years has been due to business depression. Frequently recurring rate wars between railways and motor coach lines have invariably resulted in victories for the highway lines, Mr. Harding concluded.

W. A. Worthington, vice-president of the Southern Pacific, said that the railways have lost to the highways not only a large part of their local passenger traffic and l.c.l. traffic, but also a substantial amount of long-haul passenger traffic, carload freight traffic and express traffic. Mr. Worthington introduced a chart showing the decline in passenger, express, and l.c.l freight revenue per mile of road between 1921 and 1930. He estimated, that if the present rate of decline continues, the Southern Pacific in 1935 will have lost \$6,625 per mile of road, or \$60,453,000 for the 9,125 miles of road operated. The net operating income of the Southern Pacific in 1930 exceeded that in 1921 by only \$1,422,000, in spite of an increase of \$375,000,000 in investment in road and equipment and a population increase in California and Oregon of 57.1 per cent. During 1929, the franchise motor carriers in California, with an investment of \$32,-209,000, had gross revenues of \$25,715,000, including \$9,233,000 freight revenue. Of the 501 highway carriers reporting to the California commission, 71 transported passengers; 251, property; and 179, both passengers and property. Mr. Worthington said that only a small part of the highway freight traffic is handled by certificated carriers, the bulk of it being moved by contract carriers or by private truck operators. He estimated that 60 per cent of the highway traffic now moving is handled by contract carriers, and 20 per cent by private operators, and that the total volume of highway freight traffic in California, in terms of freight revenue, is approximately \$45,000,000 a year.

Store-Door Service Provided

Mr. Worthington described the Southern Pacific's organization of the Pacific Motor Transport Company as a means of meeting the competitive conditions. The motor transport company is an express company under the California law, performing a complete freight service from store-door to store-door. The Pacific Motor Transport Company had a net operating revenue of \$16,236 in 1929, and \$60,325 in 1930. In the latter year the net revenue amounted to more than one-third of the gross. Mr. Worthington testified in favor of the regulation of contract carriers, and in reply to a question of Examiner Flynn, said that these should be required to secure certificates of public convenience and necessity in the same way that common carriers are required to do so.

The next witness was Edward H. Maggard, president and general manager of the Northwestern Pacific. He said that his company does not operate motor coaches or trucks, either directly or through a subsidiary, but that the railway has suffered a reduction of 40 per cent in its revenues and consequently has been compelled to curtail freight service and to reduce the number of

its employees. He said that motor competition has been

met in part by reductions in rates.

W. L. White, general manager of the Yosemite Valley Railway, which has a 77-mile line between Merced, Cal., and El Portal, testified that his company had gross revenues in 1930 of \$53,000, which was \$200,000 less than the average for the years previous to 1927. He said that his company has been compelled to reduce its fares in an effort to meet motor vehicle competition.

J. R. Hayden, assistant traffic manager of the Atchison, Topeka & Santa Fe, Coast Lines, testified concerning the loss of freight revenue suffered by the Santa Fe in his territory. He said that the Santa Fe does not

operate any motor trucks.

Regulation Necessary

H. M. Adams, president of the Western Pacific, testified that, in his opinion, the enactment of legislation placing the regulation of interstate motor coach and truck lines in the hands of the Interstate Commerce Commission is necessary. The law, he said, should require that certificates of public convenience and necessity be obtained from the commission, and that the motor carrier companies should be compelled to file tariffs, to adhere to their tariff rates and to refrain from fixing discriminatory rates. He said that the publication of joint interstate rail and motor coach or truck rates should be prohibited, but that railways should be permitted to operate motor coaches and trucks in place of trains where economies can be produced thereby. Mr. Adams said that it is proper for a railway to provide store-door collection and delivery service, but that this should be done only when it is made necessary by competitive conditions. He suggested that motor coaches should be used in place of passenger trains where the available traffic does not warrant regular railway service.

Further testimony as to losses in railway revenues due to highway competition was given by J. L. Scott, general passenger agent of the Western Pacific, H. A. Mitchell, president of the Sacramento Northern, J. F. Bon, assistant freight traffic manager of the Sacramento Northern, Frank E. Murphy, vice-president of the Virginia & Truckee, and J. C. Orlowsky, assistant traffic manager of the McCloud River Railway.

There was no testimony from motor coach or motor truck operating companies, and the hearing was adjourned to continue at Los Angeles, Cal., on February 2.

Aluminum Chairs For Dining Cars

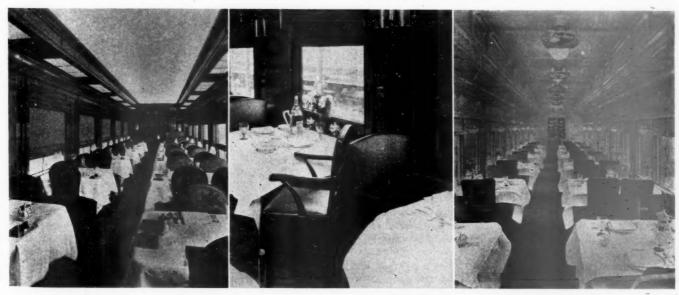
LUMINUM dining-car chairs, the product of the Aluminum Company of America, have recently been installed in a number of prominent passenger trains throughout the country, including the Broadway Limited of the Pennsylvania, the Twentieth Century Limited of the New York Central, the Blackhawk of the Chicago, Burlington & Quincy, and the Pioneer Limited of the Chicago, Milwaukee, St. Paul & Pacific. The aluminum chairs are constructed to withstand the constant vibration to which they are subjected while trains are in motion. The frames are fabricated into one integral piece and have shown from tests and actual installations a reduced maintenance cost over chairs of wooden construction. They weigh only half as much as wooden chairs of similar design and because of the welded one-piece construction they are not affected by changes in temperature.

The seats for aluminum chairs are stamped out of sheet metal blanks on large presses, while the leg braces, seat frames, back braces and related parts are bent into shape on special forming equipment after they have been pressed from aluminum sheets. The legs are formed of either sheet or tubing; likewise, the back slats and stretchers. After the parts have been formed, they are

jig assembled and the joints torch welded.

The sturdiness of the aluminum chair was established by means of a simple racking test. In this test the most severe strains a chair receives in service were duplicated. A weight of 180 lb. was placed on the seat of the chair and the chair bumped back and forth on its front and rear legs at the rate of 30 times a minute. The welded one-piece aluminum chairs, without arms, showed no structural weaknesses after being tested in this manner for more than 75 hours, while ordinary chairs of similar design loosened at the joints in but a few hours. Aluminum chairs with arms have been racked for more than 150 hours without showing any signs of failure. It is estimated that one hour on this test is the equivalent of one year of actual service.

Additional roads, besides the ones mentioned above, which have adopted aluminum chairs for dining car



Left to right—Aluminum Dining-Car Chair Installations on the Broadway Limited, Pennsylvania; the Pioneer Limited, C., M., St. P. & P., and the Blackhawk, C., B. & Q.



Aluminum Chairs Have Been Rack Tested with a 180-Lb. Weight for 75 Hours without Signs of Failure

use include the Atlantic Coast Line, the Baltimore & Ohio, the Chesapeake & Ohio, the Delaware, Lackawanna & Western, the St. Louis-San Francisco, the Missouri Pacific, the Missouri-Kansas-Texas, the Cleveland, Cincinnati, Chicago & St. Louis, the Reading, the Atchison, Topeka & Santa Fe, the Southern, the Southern Pacific and the Texas & Pacific.

Chairs Harmonize with Car Interiors

The dining cars of the Broadway Limited have an eggshell ceiling and carved walnut panels. With the exception of two large etched French glass fixtures at each end of the car and individual table lamps, the diners are indirectly lighted. In keeping with the trim and paneling, the aluminum chairs have a walnut finish and are upholstered in Canterbury Epingle fabric.

The interiors of the dining cars operating on the Twentieth Century Limited are finished in pale green with black and gold decorative lines. Henna and black are the predominating colors in both the window shades and in the carpeting. In keeping with the color scheme the light metal chairs are finished in a dull black enamel and are upholstered in henna mohair.

The interiors of the dining cars in use on the Blackhawk of the Chicago, Burlington & Quincy are done in silver-gray and blue. The welded one-piece aluminum chairs are finished in blue enamel and upholstered in blue mohair.

On the Pioneer Limited of the Chicago, Milwaukee, St. Paul & Pacific, mahogany panels and ceiling trim are employed in the dining cars. The ceilings are finished with ivory enamel. Two types of aluminum chairs are employed on these dining cars, arm chairs being used at the small tables while straight chairs are used at the large tables. All of the light weight aluminum chairs have a mahogany finish and are upholstered in blue leather.

Closely associated with the use of aluminum chairs in dining cars is the use of aluminum chairs in terminal restaurants and cafeterias. It is interesting to note that aluminum chairs are used in the restaurants of the Union Pacific Station, Omaha, Neb., the Grand Central Terminal, New York, and the new Cleveland terminal.

INTERSTATE COMMERCE COMMISSIONER P. J. FARRELL has just rounded out his thirtieth year of service with the commission. He began his service as attorney for the commission and later became chief examiner and solicitor of the law division; and in February, 1918, chief counsel. He was appointed a commissioner in June, 1928, by President Coolidge.

New Finishes and Enamels

I. DU PONT DE NEMOURS & Company, Inc., Wilmington, Del., has developed and put on the market a new line of interior and exterior finishes and enamels, employing an entirely new type of vehicle. This vehicle, which is called Dulux, has been developed in two forms; a gum, for use in the enamels, and an oil, for the new exterior and interior finishes, designed for use in the classes of work for which ordinary paints are now used. Both forms of the new vehicle, which are distinct chemical compounds, are made by chemical reactions requiring extremely close chemical control, and have no relation to the usual resins, gums and cils used in the manufacture of ordinary paints.

Dulux gum is a rubbery material which hardens to the toughness of horn, while Dulux oil is a truly synthetic oil derived from Dulux gum, in which no brittle material has been incorporated. This latter form of the vehicle is used in the Dulux interior and exterior finishes where a softer but more durable film is desired than that produced by the enamel. Owing entirely to the characteristics of the Dulux vehicles, many claims are made for the Dulux finishes and enamels, all of which, it is pointed out, are based upon exposure tests, wherein direct comparison was made between Dulux products and other paints, varnishes and enamels.

It is claimed for Dulux interior and exterior finishes, which are designed for application over either wood or metal surfaces, that they stand up longer and possess greater resistance to checking and cracking. Dulux finishes chalk like other paints, but it is said that this chalking proceeds at a much slower rate; a rate only sufficient to maintain a clean surface. It is also claimed that Dulux in tints and solid colors retains its gloss and color longer, owing to its slowness to chalk. It is claimed further that Dulux protects metal against the corrosive action of gases, fumes, salt-laden atmosphere and moisture to a greater degree, owing to the highly impervious character of the film which it produces and the resistance of this film to the growth of mold and fungus.

Other claims made for Dulux exterior and interior finishes are that they possess good hiding and spreading qualities; that they are highly resistant to spotting and smudging; and that they retain their original appearance much longer. These new finishes which are particularly adapted for application to freight cars, buildings, bridges and other wood and steel structures, may be applied by either spray or brush and are quickdrying, even under adverse weather conditions, thus protecting the finish from dust, bugs and rain.

Dulux enamels, which are based upon the Dulux gum vehicle, or upon mixtures of this vehicle with Dulux oil, are intended for places where the quality of durability must be combined with faster drying and harder surfaces, and where finishes of enamel-like appearance are needed or desired. These enamels are particularly adapted for use on railway passenger cars, furniture, machinery, etc.

In addition to possessing the favorable qualities of Dulux interior and exterior finishes, it is claimed that Dulux enamels, which may also be applied by either spray or brush, provide an exceptionally hard film which is highly resistant to marring, heat, alcohol, gasoline and oil, and which retains its flexibility over long periods, preventing chipping or cracking. These enamels dry quickly, being dust-free in approximately 20 min., and may be recoated within one hour after the first application. The enamel film is tack-free in four or five hours and thoroughly hardened in 10 to 12 hours.

A Mechanical Officer Appraises

Results Of Water Treatment

runs—Corrosion and embrittlement discussed in Western Railway Club paper*

By T. F. Powers

Assistant Superintendent of Motive Power & Machinery, Chicago & North Western, Chicago

HE primary purpose of a locomotive boiler is to generate steam. How efficiently this is done depends on many factors, the most important of which is the furnishing of feedwater that is free from large deposits of scale and mud. On the Chicago & North Western, for the past ten years we have gone into the study of feedwater extensively, and on some divisions most of the water supplied is treated in wayside treating plants. Our study of water showed that in some cases we were using water unfit for boiler use, while soft water was available only a short distance away. We had one division on which we were burning up fireboxes from scale in from one year to eighteen months, while we had three wells of soft water that we had been avoiding for years because we thought this water was unfit for boiler use. Under the directions of our water engineer, we began using this water and stopped using water from one well we supposed contained good water but which, analysis showed, contained 7 lb. of encrusting solids for each 1,000 gal. In this district, we are now able to run fireboxes indefinitely, while the flues run the four years allowed by law before renewal, thus improving a 148-mile division without one cent of expenditure.

Eleven Flue Failures in 4,343,302 Locomotive-Miles

It cannot be denied that the life of flues and fireboxes has been increased, due to the furnishing of better feedwater. Where soft water has been supplied, we now have locomotives coming into the shops for general machinery repairs not requiring firebox work. Formerly locomotives from these divisions would require renewal of side sheets or fireboxes. Unquestionably, we also have an improved performance from our locomotives on the road. In 1911, on the Chicago & North Western, we had 787 failures from leaky flues, or a failure from this cause for each 58,633 miles. In 1929, 18 years later, we had only 11 failures from leaky flues and operated 4,343,302 locomotive-miles to the leaky flue failure.

We still have occasional failures from leaky flues or a cracked side sheet, but they are rare and, when they happen, are thoroughly investigated. Unquestionably, the study given by our water engineers, in co-operation with the mechanical department, and the improved feedwater furnished as a result of these studies has been the largest single item responsible for the improved boiler conditions. In the past few years, many railroads have

been extending engine runs over two or more divisions. Much of the success in the operation of long engine runs is unquestionably due to improved feedwater furnished to locomotives.

Wayside Treating Plants

The best and most satisfactory way of treating water is with wayside treating plants. However, wayside treating plants are not satisfactory unless proper supervision is given them to insure that correctly treated water is delivered to the locomotive. It is absolutely necessary that the water be tested often enough to insure proper treatment. On the Chicago & North Western, all mechanical officers whose duties require their being on the road, such as master mechanics, road foremen of locomotives, fuel supervisors, boiler inspectors, and others, are familiar with the method of testing water. At each opportunity they make tests and forward the result of their tests to our water engineer.

The treatment necessary to remove scale has opened up new sources of trouble and new fields for study, moreover. There is no question but that we are now operating in some districts with a water that is considerably lighter than that used in former years. The larger locomotive, higher steam pressures, and the limited steam space of the modern locomotive make the problem of water getting into the cylinders a serious one. This condition is partly controlled by the use of blow-off cocks, and, where necessary, by the use of anti-foam compound. I expect to see the condition entirely corrected either by the proper design of a steam separator or a radical change in the design of the locomotive firebox and boiler to insure more steam space.

Corrosion and Pitting Still Constitute Problem

Another problem that still confronts us exists in destruction from corrosion and pitting, which is responsible for the expenditure of millions of dollars each year by American railroads. If pitting could be completely prevented, much of the heavy boiler work and expense incurred would be eliminated. It is not unusual to shop a locomotive for machinery repairs and, when flues are removed, to find that they are so badly pitted that they are only fit for scrap and that the bottom of the shell courses must be renewed because of pitting. In many cases, the crown sheets are pitted on the water side so badly that renewing is necessary. It is safe to say that the difference in cost to retip and apply a set of tubes and flues in the modern locomotive under the cost of scrapping and applying a new set is approximately

^{*} The paper; of which the present article is an abstract, was entitled reedwater and Its Relation to Boiler Troubles," presented by Mr. Powers the Western Railway Club meeting, held at the Hotel Sherman, Chicago, December 15, 1930.



Example of Failure by Embrittlement at Flue Sheet Flange

\$1,000. From this it can be readily seen that pitting and corrosion run quickly into large expense.

While there may be other factors involved, unsuitable feedwater is undoubtedly the greatest contributing cause to this destruction which is today one of the largest single items of expense in connection with the maintenance of the modern locomotive. The study and research given this subject by chemists and water engineers in cooperation with mechanical officials will undoubtedly bring results; in fact, some very appreciable progress has already been made. We know that once pitting starts it is hard to stop; and as pitting is rust, we can expect the process to continue after they are applied if we allow flues or boiler plates to rust by lying exposed to atmospheric corrosion before going into our boilers. Keeping boiler plates and tubes coated with oil or other rust-proof compound will prevent atmospheric corrosion and will help retard corrosion after they are applied.

Some of the devices and materials being tested to prevent corrosion and pitting lead us to believe that as time goes on at least a large portion of the expenditure caused by pitting and corrosion will be overcome.

Many of the railroads are experimenting with "excess" treatment of the water. The objection to excessive treatment lies in the difficulty in maintaining this quality of water over an entire engine district and in the trouble liable to arise from light water.

Embrittlement Potential Source of Danger

There is still another boiler trouble which, while not as general as others, is coupled with a possible source of danger as well as expense. I refer to the embritlement of boiler plates in the shells of locomotive boilers. Fortunately this is not a general condition.

The first case of shell embrittlement came to my attention about 1911, and since that time I have had opportunities of observing many such cases. On one railroad that seemed to have an unusual amount of this trouble, it was necessary to renew entire shell courses of boilers or to replace the entire boiler with a new one. The trouble was confined to locomotives operating in certain districts. Locomotives of the same age and class operating in other districts were not affected. This indicated that some local condition was responsible.

When these failures first occurred, the locomotive builders, steel manufacturers, and the railroad officers affected went into conference, as it was generally believed that the quality of steel and workmanship were the cause of this difficulty. It was a common practice at that time to punch holes for rivets in the plates. These holes were of a smaller diameter than that of the rivets to be applied, and the holes were then enlarged by reaming.

Working upon the assumption that improper workmanship and construction were at least partly to blame for the cracking of boiler plates, specifications were changed to require that in the construction of locomotive boilers all rivets holes be drilled; and inspectors were instructed to require that the utmost care be used in fabricating the shells of boilers. The most rigid inspection was insisted on in manufacturing of steel; but, regardless of all these safeguards, cracked boiler plates were still experienced in certain districts.

The theory was then advanced that strains set up in the steel at the time of manufacturing were responsible for cracking. It was hard to conceive, if this theory were to be accepted, why boilers in other districts should be free from this trouble. It is true that localized strains are set up in the rolling of boiler plate, flanging, riveting and especially in hydraulic riveting, and it must further be admitted that it is practically impossible to build a boiler free from localized strains. Some of the characteristics associated with the cracking of shell plates in locomotives are as follows:

It is confined to certain definite districts.

It is more prevalent in locomotives in passenger service.

The cracking is generally discovered below the water line.

In horizontal seams it is always confined to the outside row of rivets.

It appears always to start from the dry side of the plate.

Before failure occurs, the cracks are generally discovered by small hairline checks which readily open up under heat.

There is no elongation of the plates and, in many cases, rivet heads break off before failure occurs.

The cracks are very irregular but usually follow a general direction.

The cracks seem to be more numerous and appear to start where the plates are not well laid up.

In many of the cracked plates the chemical analysis shows that the steel manufacturers are complying with the specifications, although at the point of fracture decided crystallization is observed. The steel is very brittle and, in many cases, looks like cast iron.

Localized Strains a Factor

We were forced to give up the theory that the cause of this cracking was due to poor material or poor workmanship in manufacturing. While the failure of shell plates on locomotive boilers had not been a general con-



Excessive Pitting and Corrosion in Typical Side Sheet Section

dition on American railroads and had been confined to a few railroads, and then only in certain districts, there has been a considerable amount of this difficulty experienced in stationary plants and much study has been given the matter. Our attention was called to studies made at the University of Illinois. These studies indicate that localized strains combined with excessive use of sodium hydrate are the cause of embrittlement which results in cracking. As it is impossible to remove localized strains in the manufacturing of boilers, the cure appeared to lie in the correction of the feedwater. The boiler code committee of the American Society of Mechanical Engineers, working along the same line, has stated certain definite ratios of sodium sulphate to sodium hydrate to be carried in boilers for definite working pressure. Tannate has been suggested as an antidote. In accordance with these findings, treatment is now applied with a view of offsetting any difficulty with the feedwater; and since this treatment has been used, the trouble seems to have materially decreased. We feel that eventually complete elimination of cracking will be accomplished.

I have tried in this paper to express from the viewpoint of a mechanical officer some of the difficulties experienced from improper feedwater and to outline in a general way what has been accomplished by improving it. Definite progress has been made; but there is still much to be accomplished. If improvement is to continue, it is necessary that close co-operation exist between the water engineers and other officers in the mechanical and other departments. It is important that mechanical department officers keep the water engineers constantly advised of difficulties existing in locomotive operation due to water troubles. Thus, by the proper study of water conditions, they may be in a position to recommend to operating officers expenditures necessary and savings to be effected. In conclusion, our managements now realize that the furnishing of proper feedwater to locomotives effects a real economy and is definite assurance of good operating conditions.

Conclude Waugh-Armour Reciprocity Case

HE hearings conducted by the Federal Trade Commission under its complaint charging the Waugh Equipment Company and officers of Armour & Co. with unfair methods of competition for the alleged use of the traffic of Armour & Co. in selling draft gear to the railroads were concluded on January 27 when both the respondents and government completed the presentation of their evidence. The examiner will now prepare a report on the hearings, following which arguments of counsel will be heard before the commission reaches a decision, which will probably not be before June. It is reported that meantime the commission will hear arguments and render a decision on its first "reciprocity" complaint involving the Mechanical Manufacturing Company and officers of Swift & Co., the examiner's report and government's brief having been filed for some time.

Quality of Gear Made a Question

The respondents offered no testimony following that of F. W. Ellis, vice-president in charge of traffic of Armour & Co., as reported in last week's issue of Railway Age, it having been decided not to call A. J.

Pizzini, president of the Waugh Equipment Company, and the defense was abruptly concluded by a motion to dismiss the complaint on several technical grounds, including the alleged failure of the government to prove its charges. Following this motion, which was denied, several exhibits were introduced bearing on the quality of the gear, purporting to establish superior merit as the reason for the purchase of the gear by the railroads. Principal among these exhibits were the reports of draft gear tests conducted by the American Railway Association at Purdue university and reports of comparative tests conducted by the New York Central lines. abstract of the Purdue tests was published in the July 6, 1929, issue of the Railway Age on pages 32 to 37, inclusive. The report contained no expression of opinion as to the relative merits of the different designs tested and, at the time of introducing the exhibits, the attorney for the respondent made no deductions.

The report of the New York Central tests was a

The report of the New York Central tests was a several-page summary of the results of tests conducted in the laboratory of W. H. Miner, Inc., and a technical discussion by H. W. Faus, engineer of tests of the New York Central, of the rating given different makes of gear, and this report was accompanied by a letter, written on March 21, 1928, to F. H. Hardin, assistant to the president, in which P. W. Kiefer, chief engineer of motive power and rolling stock, said in part:

The Waugh gear, 400-A, National—M-17 and Miner—A-79-XB are the best three gear thus far tested and graded in accordance with our method of laboratory test....I am inclined to believe that the Waugh-Gould 400-A gear probably could be expected to provide slightly better protection than the Miner A-79-XB.

Following the introduction of this evidence, the attorney for the commission introduced several letters and reports from railway files for the alleged purpose of refuting implications which might be raised by the respondent that the merits of the Waugh gear were not open to question. These exhibits included a report received by S. B. Andrews, engineer of motive power, Chesapeake & Ohio, on January 31, 1929, in which two mechanical department officers, referring to the results of a test of the Waugh-Gould gear No. 402, said:

From the foregoing results, we do not recommend any change in our present standard.

Another exhibit consisted of a letter written to J. P. Egan, superintendent of car inspection and maintenance of the New York, New Haven & Hartford, on December 11, 1928, in which an assistant, S. L. Sweet, said in part:

In conference with W. H. Dunham, superintendent of the car department of the Chicago & North Western, I was informed that they were experiencing trouble with the Waugh-Gould 400 and 402 gear...due to the follower plates being 12 in. in length instead of 12½ in., as prescribed...It was further suggested that I look around the freight yard where I inspected a number of coal cars built in 1927 and 1928....

A large number of the cars had gear carrier irons bowed downward... In addition, the gear had moved upward... In looking over a number of box cars, similar conditions were seen...The rail carrier was broken at the sill bolt hole and

A large number of the cars had gear carrier from bowed downward.... In addition, the gear had moved upward.... In looking over a number of box cars, similar conditions were seen... The rail carrier was broken at the sill bolt hole and the car was not safe to run.... The conditions observed are positive evidence that there is a lateral force being generated in the gear which will result in damage, depending upon the position of the gear in the pocket....

Further information was obtained from C. J. Wymer, superintendent of the car department of the Chicago & Eastern Illinois....I was told that many cars equipped with Waugh-Gould gear were reported as having bent sills....It was further said that the president had instructed them to refrain from discussing the Waugh-Gould gear and its attendant troubles.

In another letter dated March 5, 1930, G. F. Hess, superintendent of motive power of the Wabash, writing to J. E. Taussig, president, said in part:

During the first three months of 1929, the Wabash placed in service 500 automobile cars equipped with Waugh-Gould 402

In November, we had an inspection made of about 25 gear and noticed nothing wrong....During February, 1930, we made another inspection....We found Wabash car No. 49289 with draft sills bulging on both ends of the car....The examination did not show anything seriously wrong with the draft gear proper, but the ends of the flat springs had worn into the following the draft sills.

lowers, causing the followers to be forced against the draft sills.

On March 3, Wabash car No. 49503 was found with draft sills badly sprung. We found the follower plates badly cut by the end of the flat springs.

In another letter dated November 2, 1928, G. E. Coutant, assistant to the superintendent of motive power, of the Wabash, wrote a letter to G. H. Hess, superintendent of motive power, in which he said in part:

On October 31, accompanied with J. Matthes, chief car inspector, and H. L. Reynolds, I visited the Chicago & North Western to investigate Waugh-Gould gear on hopper cars built in April, 1928. We examined about 30 cars equipped with

Waugh-Gould 400-A gear.

Design 400 was intended to overcome the defects in Gear Design 400 was intended to overcome the detects in Gear 175, and the results with this Type 400 gear are covered by our report of May 16, 1928, as applied to 100 Chicago & Eastern Illinois cars built in June and July, 1927. The trouble in this case developed in less than one year after cars went into service and caused the Waugh-Gould people to bring out the 400-A gear, which is the one on the Chicago & North Western

The trouble with these gear seems to be that, regardless of the tests in the laboratories, the gear do not properly center in service and, under heavy shocks, deliver a hammer below either in a transverse or vertical direction, depending on the manner

in which the gear is applied.

In another letter introduced by the government, dated November 12, 1928, S. O. Taylor, master car builder of the Missouri Pacific, made a report to O. A. Garber, chief mechanical officer, in which he said in part:

Have inspected several hundred Chicago & North Western cars equipped with the old Waugh plate gear and Waugh-Gould Type 400, 400-A and 402 gear. . . . The larger number, equipped with old Waugh plate gear, had sills badly damaged and buckled and striking plates broken in a great many places. The 400 gear, I found, had been sticking, the couplers striking badly against the bearing. I noticed about 25 per cent of the 400-A The 400 gear had the couplers striking the striking casting...No irregularity in 402; however, the Type 400, 400-A and 402 have only been in service since the first of 1927.

In another letter, dated March 19, 1928, K. F. Nystrom, superintendent of the car department of the Chicago, Milwaukee, St. Paul & Pacific, reported to J. T. Gillick, vice-president, on a test made of gear at the laboratories of the Waugh Equipment Company, attended by representatives of the Atchison, Topeka & Santa Fe, the Baltimore & Ohio and the Erie, in which he said in

Four Type 402 gear and one Type 400-A gear were tested. Type 402 is the one offered the Milwaukee. Three of four gear of this type failed in the preliminary test which shows that sufficient experience has not been obtained in connection with the gear to make it practicable for application to new cars.

EMPLOYEES OF THE St. LOUIS-SAN FRANCISCO have contributed \$33,815 to the Frisco Relief Fund which was organized on November 19 for the benefit of former employees of the company who lost their positions as a result of the business

An Air Service Information Bureau has been established by the Pennsylvania at its station in New York City. Information will be given not only concerning the Transcontinental and Western Air, and the Pan American Airways, but also concerning the Ludington Line, operating planes between New York and Washington; also the bureau will answer inquiries concerning the services of connecting air lines.

M. P. and L. & A. Joint Trackage Rights

(Continued from page 322)

favorable terms than can be done under the present method of operation, for its operating expenses will be decreased by the proportioned maintenance and taxes and the additional revenue derived from renting the property. In addition, he said, the railroad will have the right to sell a one-half interest in the property between Baton Rouge and New Orleans for the sum of approximately \$5,000,000 and still retain full use of it.

L. A. David, assistant general manager of the Gulf Coast Lines, testified that the M. P. would save between \$469,000 and \$602,000 a year in the operation of its trains over the L. & A. tracks. He said that he believed the operating time for freight trains between New Orleans and St. Louis would be reduced by about 10 hr. due to the 50-mile shorter route and the elimi-

nation of car ferries.

Luther Walter, counsel for the New Orleans Public Belt, made his withdrawal from the case on January 30, stating that the New Orleans Public Belt was not opposed to the joint trackage agreement or to the bridge at Baton Rouge and asking that the commission include in its order a provision that the T. & P. traffic would continue to move to New Orleans over the west side rails as at present, that the interchange of the T. & P. be conducted through the facilities offered and to be offered at New Orleans and that the T. & P. be compelled to use the [projected] New Orleans Public Belt bridge in lieu of its present ferries when "reasonable rates have been made."

On January 30, testimony of witnesses for opposing interests was heard, those of the Illinois Central oc cupying a large portion of the time, since this road is the principal objector. L. A. Downs, president of the I. C., testified to show that the contract will be of little benefit to Baton Rouge and New Orleans and will do injury to the I. C., with no corresponding benefit to the M. P. He also said that the amount of money which the M. P. will be called upon to expend will be a wasteful expenditure which the public will ultimately have to bear; that the territory into which the M. P. seeks to extend its line is already served adequately by the Yazoo & Mississippi Valley and by the L. & A.; and that the only effect of granting the petition will be to take traffic away from the existing lines.

He stated that the existing facilities are adequate and if they are not can be made so by the expenditure of much less money than the M. P. will have to spend

under the provisions of the contract.

In discussing the financial plans of the contract, he said the basis of the purchase of one-half interest of the L. & A. by the M. P. contemplated a valuation on the line between Baton Rouge and New Orleans of nearly the amount the present owners paid for the entire road. He also said that it was difficult to overcome the impression that the real purpose of the application is to secure access to the territory intermediate between Baton Rouge and New Orleans and to this extent the application involves an invasion of territory and a duplication of facilities not warranted by industrial needs.

Another portion of his testimony indicated that the plan will disrupt the consolidation program of the commission in that the L. & A. assigned to the Rock Island-Frisco group, will in effect be under the control of the M. P. so far as the line from New Orleans to Baton

Rouge is concerned.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended January 24 amounted to 715,690 cars, a decrease of over 10,000 cars as compared with the week before and of 146,656 cars as compared with the corresponding week of last year, while the decrease as compared with 1929 was 210,784 cars. An increase of 852 cars as compared with the corresponding week of last year was shown in the loading of grain and grain products but all other commodity classifications and all districts showed reductions as compared with both years. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

	Week	Ended	Saturday,	January	24,	1931	
Districts Eastern Allegheny Pocahontas Southern Northwestern Central Western Southwestern				1931 162,784 142,578 45,036 112,467 87,407 107,902 57,516		1930 201,434 177,227 59,731 132,871 105,000 124,756 61,327	1929 216,418 188,708 58,957 144,783 102,070 139,550 75,988
Total Western	Distri	cts		252,825		291,083	317,608
Total All Roa				715,690		862,346	926,474
Commoditie Grain and Grait Live Stock Coal Coke Forest Products Ore Mdse. L.C.L.	n Pro			39,522 24,888 155,815 9,237 34,196 5,105 208,203		38,670 29,081 211,027 11,865 45,275 7,638 232,980	47,960 26,840 209,452 12,842 59,320 8,566 240,951
January 17 January 10 January 3				238,724 715,690 725,938 714,251 615,382		285,810 862,346 847,155 862,461 775,755 538,419	320,543 926,474 931,861 914,438 798,682 639,389
Cumulative t	otal, 4	weeks		2,771,261		3,347,717	3,571,355

The freight car surplus, which for some weeks has amounted to nearly as many cars as were loaded each week, averaged 673,039 cars for the week ended January 15. This was a reduction of 24,293 cars in a week. The total included 362,713 box cars, 238,967 coal cars. 28,959 stock cars, and 15,469 refrigerators cars.

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended January 24 totalled 47,613 cars, an increase over the previous week of 498 cars but a decrease from the same week last year of 10,706 cars.

	Total Cars Loaded	Rec'd from Connections
Total for Canada		
January 24, 1931	47,613	27,961
January 17, 1931	47,115	27,491
January 10, 1931	43,966	24,773
January 25, 1930	58,319	36,650
Cumulative Totals for Canada		
January 24, 1931	175,043	102,191
January 25, 1930	210,711	135,934
January 26, 1929	220,823	147,002
	35 668	33.7435

A TUGBOAT guided by a pilot who rides, not on the tug, but on the bridge of the car float, which is being towed, has been put in service by the Canadian Pacific Car & Passenger Transfer Company, which transfers freight cars on floats between the New York Central at Ogdensburg, N. Y., and the Canadian Pacific at Prescott, Ont. Suitable wire connection being made, the operations of the machinery on the tug, steering, etc., are controlled by the man on the carfloat, this arrangement being necessary to put the pilot in a position high enough to see in all directions. This tugboat, built by the Canada Steamship Lines at Levis, Quebec, is propelled by Diesel-electric drive, and the remote control scheme and other electric features were provided by the General Electric Company.

Looking Backward ...

Fifty Years Ago

The Postal Telegraph Company is the name of a corporation which is asking aid from the Congress of the United States. It proposes building an extensive system of telegraph lines and cables, and wishes to use the postoffices for local stations. It proposes to connect all the principal cities within 15 months, and to increase its plant to 70,000 miles within seven years.—Railway Review, February 5, 1881.

The government auditor of railroad accounts, whose duty it is to inquire into the condition and property of railroads that have received land grants from the United States, in his annual report recommends that provision be made for some plain and uniform system of reports from all companies doing interstate business, and for a special report in regard to accidents on railroads and railroad trains.—Railway Review, February 5, 1881.

The demand for steel rails continues to increase, and many mills are far behind in their orders. Prices have advanced to from \$62 to \$64, partly on account of the eager demand, and partly also in consequence of an advance of about \$1 per ton in England and of about \$1 per ton on ocean freights. Iron rails are in some demand in small lots at from \$47 to \$52. It is held by some that iron rails have had their day and that their production will virtually cease during the present year.—Railway Age, February 10, 1881.

Twenty-Five Years Ago

The Chicago, Milwaukee & St. Paul has awarded a contract to a Seattle contractor for the construction of the 275 miles of its Puget Sound extension between Tacoma, Wash., and Seattle and the Washington-Idaho state line.—Railway Age, February 9, 1906.

A. P. Titus has been appointed car accountant of the Wheeling & Lake Erie and the Wabash-Pittsburgh Terminal, with office at Pittsburgh, Pa. J. G. Walber, assistant to the general manager of the Baltimore & Ohio Southwestern [now part of the Baltimore & Ohio], has been appointed assistant general manager at Cincinnati, Ohio.—Railway Age, February 9, 1906.

The Pennsylvania is prepared to build a railroad from the harbor of New York through the eastern part of the greater city to and across Long Island Sound, and so connecting with the New England railroad systems, and in connection with the tunnels under the North and East rivers, bringing Long Island, for the first time, into direct railroad communication with the rest of the country.—Railroad Gazette, February 9, 1006.

Ten Years Ago

The immediate abrogation of all national agreements, the remanding of the question of rules and working conditions to negotiation between each carrier and its employees, and the reestablishment of the right to pay unskilled labor not less than the prevailing rate of wages in the various territories served by any carrier, were requested of the Railroad Labor Board on January 31 by W. W. Atterbury, vice-president of the Pennsylvania and chairman of the Labor Committee of the Association of Railway Executives. The request was accompanied by a vigorous statement of the present precarious financial condition of many of the carriers.—Railway Age, February 4, 1921.

The seven chiefs of labor unions countered General Atterbury's statement with an appeal to President Wilson for an inquiry by the Interstate Commerce Commission into the conditions which the railway executives are citing as the ground for demanding of the Railway Labor Board that the national agreements be abolished.—Railway Review, February 5, 1921.

Communications and Books . . .

Transportation — The Most Highly Perishable Commodity

TO THE EDITOR:

AKRON, OHIO

When the train is not run, the car doesn't move, the seat is unoccupied or the berth is vacant, transportation to that extent is not performed and the loss can never be recovered. Compared with the so-called perishable commodities, the useful life of transportation is indeed short. Even ice without protection has a useful period of life. Such articles as meat, vegetables and dairy products, with ordinary care, permit some storage and allow time for marketing. But transportation when unused, never enjoys even a brief period of life. When we have failed to sell the transportation available our costs are increased accordingly for the units which

The phrase "Readiness to Serve" may be a bogey-man and overworked, but it comprises a far larger portion of our costs than does the actual serving. True, merchants, bankers, or professional men also stand ready to serve and in so doing incur some costs, but their stock in trade is not dissipated if unused. Transportation is ephemeral. Money can be loaned tomorrow. The stock of sugar and wire nails need not be replenished until exhausted. Even the human machine is wound up for about so much constructive effort. Transportation not created by the machine called the railroads is gone forever, but the machine has to be wound up again and again and the cost is much the same whether used at nearly a maximum capacity or only partially.

Have we as railway officers sufficiently impressed the man in the street with the value to him of being able to ship and ride today or tomorrow or not at all, at his convenience and sole choice, and without notice to us or cost to him? Have we brought home the fact that railroads serve all territories in all seasons, handling perishable, bulky, heavy disagreeable and dangerous commodities, while the subsidized competition now causing us so much trouble chooses favorable territories, operates seasonally and handles only the cream of the business?

J. M. Hoon, Vice-President—Operation, Akron, Canton & Youngstown.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Alaska Railroad. Report of Special Select Committee on Investigation of the Alaska Railroad. Senators Howell, Kendrick, and Thomas of Idaho composed this committee. Includes "Report of Examination of the Accounts of The Alaska Railroad" p. 11-36. Senate Report no. 1230, 71st Cong., 3d sess. 36 p. Pub. by U. S. Govt. Print. Off., Washington, D. C.,

The Co-ordination and Development of Transport. Final Report of the Royal Commission on Transport. Cmd. 3751. Includes historical survey of transport, and general discussion of the problems and possibilities of railways, highways, road transport, tramways, canals and inland waterways, harbours, docks and coastwise shipping, with recommendations. 240 p. Pub. by H. M. Stationery Office, London, England. 4 shillings. Available in this country from British Library of Information, New York City.

Industrial and Commercial Germany. Includes "a survey of Germany's economic position and the most important problems arising out of it, together with a series of articles.... dealing with the principal branches of industry, their capacity and their

output." 194 p. Pub. by Hamburg-American Line, New York. Apply.

The States Through Irish Eyes, by E. CF. Somerville. Miss Somerville was the first lady M.F.H. in Ireland and she likes our railroad stations and trains, but not the way our trains are started and stopped, Chapter IV. "No wagon-lit accommodation in European trains could compare with the comfort of the drawing-room apportioned to us." p. 25. In Chapter V she pays her respects to another American means of transportation, the Aiken buggy. 200 p. Pub. by Houghton, Mifflin Co., Boston and New York, \$2.50.

Periodical Articles

Automatic Block Signalling on the Canadian Pacific Railway, by A. J. Kidd. "Of the 1,210 road miles of automatic block signals in service....212 road miles have double track signalling, while the balance, or 998 miles, is made up of 243 miles of single track 'overlap control' and 755 miles of 'Absolute permissive block signalling." Illustrated. Engineering Journal (Canada), January, 1931, p. 19-23.

Caution! Danger Ahead! by Edward Hungerford. "It has been suggested that the present emergency is large enough to call a railroad convention—presidents, vice-presidents and other high executives—to continue in session for a week, if necessary, and to thrash out some of the problems which are so vexing to the business as a whole." Saturday Evening Post, January 31, 1931, p. 21, 47-52.

How Shall Directors be Chosen? by Malcolm C. Rorty. "Votes of employee and public" p. 25. Nation's Business, February 1931, p. 23-25.

I Smell Smoke! by Thomas F. Dougherty. The Assistant Chief of the New York Fire Department discusses fire hazards, fire losses, and preventive measures that can be adopted by grown-ups and children in homes and in offices. The figures for deaths in fires and property losses are startling. Saturday Evening Post, January 31, 1931, p. 29, 99, 102, 105.

Nanking-Pukow Train Ferry. This will be the first railway train ferry to be operated in China. Illustrated. Far Eastern Review, December 1930, p. 669-673.

A New Rival for the Railroads, by Curtis Hodges. Pipe lines, their history and possibilities. Illustrated. Nation's Business, February 1931, p. 33-35, 122-124.

La Nouvelle Signalisation des Chemins de Fer Français, by M. Tuja. Illustrated with charts showing in parallel columns signals as now used, and signals to be installed—both day and night aspects, in colors. Colors include green, red, yellow, mauve and light blue. Revue Générale des Chemins de Fer, January 1931, p. 3-28.

Six Men Who Shape Railroad Destiny—The Group of Executives Which Charted the Four Big. New Systems, by S. J. Woolf. "And although the outcome of the deliberations of Einstein, Millikan and Michelson in California will eventually play an important part in the lives of men, we of the present generation will be more materially affected by the decisions of the six who have been meeting in New York." The six are W. W. Atterbury, J. J. Bernet, P. E. Crowley, O. P. and M. J. Van Sweringen, and Daniel Willard. New York Times Magazine, January 25, 1931, p.8-9.

Train-Ferry Landings at Port Mulgrave and Point Tupper, N. S., by D. B. Armstrong and W. Chase Thomson. An illustrated description of the problem met, construction details, and erection equipment. Engineering Journal, January 1931, p. 3-14.

You Pay Your Money—But What's Back of Your Choice? by Fred C. Kelly. An inquiry into why some people prefer some railroads and others, and what the railroads are doing to attract passenger traffic. American Legion Monthly, February 1931, p.12-13.

A Young Man Goes to Work, by Pare Lorentz, Presentation of experience of a college man recruited for industry, with conclusion "The man who starts at the bottom of a corporation to work his way up is a fool." p.207. "Straws in the Wind Section" of Scribner's Magazine, February 1931, p.205-208.

Odds and Ends . . .

A Faithful Pen Holder

J. E. McGurk, train dispatcher on the St. Louis division of the Pernsylvania, claims some sort of a record for a pen holder which he uses daily. He began using this pen holder 25 years ago, and has used no other since.

Two Thousand Sweaters

Joseph E. Doremus, agent for the New York Central at Marble Hill, N. Y., claims the sweater-knitting championship, and as far as we are concerned, he may have it. Joe has been knitting for 13 years, and recently completed his 2.000th sweater.

The I. C. C. and the Zoo

Live ostriches, camels, zebras, and even blood-sweating behemoths, need no longer fear that they will be over-charged when riding on the railways. The Interstate Commerce Commission in its Released Rates Order No. 916 has now provided the exact rates under which they are to be transported.

Lincoln and the B. & O.

Observing onlookers have noted that in the film "Abraham Lincoln" the baggage check on the martyred president's bag reads "B. & O." This is historically correct, since the Civil War president completed the last portion of his journey from Springfield to Washington for his first inauguration over that railroad.

Lifetime Passes

After securing special permission from the Interstate Commerce Commission, the Illinois Central has presented lifetime passes to 800 veteran employees. These passes are personally signed by President L. A. Downs, and are contained in neat leather cases. All employees with a continuous service record of 40 years or over will have these passes good for themselves and their wives.

Car Bandits Beware!

R. G. Pickrell, captain of the Canadian National Police Revolver Team, has won the International Pistol Championship. Pickrell shot a score of 531 out of a possible 600, equalling the world's record, to win the championship. Pickrell and his associates on the team have captured 13 first prizes, one fourth, and one sixth prize in major shooting events in Canada and the United States within a year. Pickrell is also the United States rapid fire champion.

Railroader a Member of the "Lost Battalion"

Lowell R. Hollingshead, delivery clerk for the Norfolk & Western at Portsmouth, Ohio, is one of four survivors of the squad that was sent to bring help to the "Lost Battalicn" during the World War. In the course of his journey, Hollingshead was captured by the Germans, after being wounded, and was also sent back by the German officer in command to the major in charge of the American forces with a demand that they surrender, which, needless to say, was not considered.

Much-Used Track

FORT WORTH, TEX.

TO THE EDITOR:

In the Railway Age of January 17, it is stated that the D. & H. track north of Avoca, Pa., probably has more railroads operating over it than any other track in the country excluding terminals. I notice the greatest distance used by the four roads is 22 miles. On 35 miles of the Rock Island track be-

tween North Fort Worth, Tex., and Dallas, four roads operate over the entire distance: the Rock Island, the Frisco, the Southern Pacific, and the Fort Worth & Denver City, having a total of 27 scheduled trains daily.

A. J. MESSERSMITH, Auditor, Chicago, Rock Island & Gulf Ry.

Railway Presidents Named Knights of Malta

Among a group of Americans recently elected to the Knights of Malta, the highest papal honor, were Lawrence A. Downs, president of the Illinois Central, and John J. Pelley, president of the New York, New Haven & Hartford.

Camel Loses to Locomotive

When a locomotive hits a camel on the Dakota prairie, that's news! And if the locomotive happens to be the largest steam rail engine in the world, that's just too bad for the camel. A few days ago, "Old Charlie," a camel which was housed at Bagdad Park, Dickinson, N. D., found an opening in the enclosure and wandered out on the Northern Pacific tracks where he disputed the right-of-way with one of the 5,000 type, 1,118,000-lb. locomotives which was drawing a freight train. "Old Charlie" died of a broken neck.

Twice To The Moon and Back German Railroads' Daily Mileage

That the daily mileage of passenger and freight trains of one single railroad system is equal to two round trips between the earth and the moon, is indicated by the data contained in the German Railroads calendar for 1931. The number of passengers transported annually over this railway system is more than twice that of all Class I American railroads combined. The total mileage is 33,000 miles with a total of 75,000 miles of track. There are no fewer than 130 frontier and transfer stations which connect the German Railroads with surrounding foreign countries. Among the many hundreds of railway bridges in Germany, 24 cross the Rhine. The German Railroads operated 453 extra trains to handle the traffic to the Leipzig Spring Fair. The total number of cars which it placed at the disposal of German industry was 46,360,911. The company owns 69 steamships of which 61 are in the public service. The total annual income of the German Federal Railroads Company amounts to approximately 5 billion marks (roundly 1.125 million dollars). Of this, the gross income of 205 days in the year is required to pay salaries and wages for the company's 700,000 employees, while expenses for material eat up 99 days' returns. Reparations payments account for 77 per cent of the remaining 61 days' revenue.



A Rail, Highway and Stream Crossing on the New Line of the Louisville & Nashville Near Hagans, Va.

NEWS

Proposed Allocation of New England Roads

Inclusion of B. & M. and two Maine lines with C. & O. is suggested

A plan for the allocation of the New England railroads among six trunk lines was outlined by W. H. Boyd, Counsel for O. P. and M. J. Van Sweringen, in an address at the annual dinner of the Providence (R. I.) Chamber of Commerce on February 3. The plan was submitted as a counter-proposal, to be considered by the New England Railroad Committee, for proposals which have been made for a single all New England system, for a combination of the New Haven and Boston & Maine, or to maintain the existing status, all of which Mr. Boyd criticized.

The six trunk lines, to which the New England roads would be assigned under Mr. Boyd's proposal, are the New York Central, the Pennsylvania, the Baltimore & Ohio, the Chesapeake & Ohio-Nickel Plate, the Canadian National and the Canadian Pacific. Under the plan the Chesapeake & Ohio-Nickel Plate would receive the Boston & Maine, the Maine Central and the Bangor & Aroostook. The New York Central would retain the Boston & Albany and the Rutland, except the Rouses Point-Ogdensburg line of the latter; the New York, New Haven & Hartford would be controlled jointly by the Pennsylvania and the Baltimore & Ohio. No new allocations would be made to the Canadian roads, but they would retain their present lines in New England.

The so-called bridge lines, the Delaware & Hudson, the Lehigh & Hudson River, the Lehigh & New England, the New York, Ontario & Western and the Rouses Point-Ogdensburg line of the Rutland, Mr. Boyd said, would be "allocated between or among the proposed four Eastern trunk line systems in such manner as to give them access to the Hudson River gateways and direct connection with the New England railroads allocated to them respectively."

Other suggestions contained in the plan were:

"That all existing joint through routes, including differential rail routes, and all gateways should be kept open unless changed by order of the Interstate Commerce Commission.

"Existing routes from New England interior points to New England ports,

"Transportation by artificial waterway—that is by waterway on which large sums had to be spent originally for its development, and large sums have to be spent annually for maintenance—is not now and does not appear likely ever to be an economical form of transportation in the United States. The common belief that it is economical is—in the light of the visible facts—simply a superstition."

-Thomas F. Woodlock in the Wall Street Journal

and existing water and rail differential routes applying through New England ports, should be maintained unless changed by order of the Interstate Commerce Commission.

"The Eastern trunk line systems and the two Canadian systems should be called upon to co-operate and should co-operate with the New England railroad committee and with each other in working out such exchanges of rights as may be practicable and necessary in the public interest to give competitive service without unduly weakening or giving undue advantage to any system.

"The joint use of terminals should be left open for later consideration."

Canadian Commission Head Resigns

Hon. H. A. McKeown, chairman of the Dominion Board of Railway Commissioners, has resigned. An order-in-council accepting the resignation of Judge McKeown, who was formerly Chief Justice of New Brunswick, was approved by the Canadian Cabinet last week. Announcement to this effect was made by Hon. R. J. Manion, Minister of Railways and Canals.

Dr. Manion stated that Judge McKeown had resigned at his own request. The former chairman had previously intimated to the minister that his duties were too onerous and exacting for him to continue and had intimated to Dr. Manion that he would be pleased to be relieved of his work.

Judge McKeown was appointed on September 16, 1924 as chairman of the Board of Railway Commissioners.

Another vacancy exists on the board due to the resignation of Thos. Vien as commissioner recently.

The resignation of Judge McKeown becomes effective on March 1 next.

Rail Mergers Opposed in Report to Senate

Congressional committees to give "low-down" on consolidations and holding companies

Members of the Senate committee on interstate commerce are scheduled to meet on February 10 to learn all about the exhaustive investigation they have been making since Congress adjourned last June, on the consolidation and unification of railroad properties and the effect of them upon the public interest, which will be laid before them in the form of a report of a special research expert, William C. Green, who had previously served the committee as an expert in connection with proposed legislation on communications and power. Senator Couzens, chairman of the committee, obtained passage of a resolution providing for such an investigation, at an expense not to exceed \$5,000, with a provision that the report should include such recommendations for legislation as the committee deems advisable.

The House committee on interstate commerce has also announced its intention of making public shortly a report on its investigation as to who own the railroads, with special reference to the activities of holding companies, investment trusts, etc., which was also supposed to include recommendations as to what should be done about it legislatively, as the Interstate Commerce Commission recommended that Congress look into the matter with a view to placing holding companies under regulation. The matter was referred to a sub-committee headed by Chairman Parker of the committee, and W. M. W. Splawn was retained as special counsel. Under the direction of Dr. Splawn, and with some assistance from the Interstate Commerce Commission, a large amount of information on the subject has been collected, largely through questionnaires which, if they have been fully answered, would make available far more information than the Interstate Commerce Commission or the public has ever had as to the principal stockholders of American railroads and the inter-relations between railroads and investment or holding companies. For a long time it was taken for granted that recommendations would be made for legislation at this session of Congress but as the time for adjournment has approached less has been heard regarding the possibility of recommendations.

Among the conclusions in the report to be considered by the committee is the following, which Senator Couzens would probably have been willing to write for less than \$5,000:

"That a study of the records, hearings, and experience of the past ten years does not disclose a situation requiring in the public interest further encouragement of a comprehensive program of consolidation as contemplated by the transportation act but that regulatory legislation should be continued or enacted giving the Interstate Commerce Commission full control of permissible unifications."

The report states that the consolidation legislation has not and cannot accomplish its original purpose for various reasons, including the following:

Equalization between carriers, so that the average rates will produce substantially the same rate of return for each, by consolidation, can only be accomplished by grouping all carriers in any given competitive territory in systems.

Such a grouping can only be made by formulating a plan, which must be then followed

Opinion is practically unanimous that the provision for such a plan is impracticable.

A complete grouping will not be carried out under a voluntary system because the strong roads refuse to take over weak roads unless the transactions are commercially justifiable.

A compulsory system cannot be put into effect because one carrier cannot be compelled to acquire another.

In view of the position of the stronger roads as to the acquisition of unprofitable weak roads, and in the light of the history of the past ten years, there exists no reasonable ground for belief that the weak road problem will be solved by a policy of consolidation.

That there is no definite evidence that consolidations will result in substantial economies.

That there is no substantial evidence that consolidations will produce any reductions in rates.

That a program of consolidation providing for the grouping of carriers into provisional systems under a complete plan with provisions for adjustment of income within each system on a recapture basis might assist the weak roads generally. That such a plan is objected to as amounting to compulsion, and is further subject to the same objections as the present recapture law and the present provision for a complete plan, and might be of doubtful constitutionality.

That the greatest benefits of consolidadations now contemplated will accrue to lines already strong, who are seeking largely to acquire other strong lines and thus build up their systems, rather than to take in weak lines.

That labor will probably suffer from such consolidations as are now sought, unless some protection is afforded employees.

If consolidation legislation is to be continued, the report says, provision should be made for the protection of employees and for the regulation of holding companies, and additional legislation and

amendments as to procedure, of the character set out in S.668 (the Fess bill), should be adopted.

New Oklahoma Commissioner

Paul A. Walker has been appointed as a member of the Oklahoma Corporation Commission at Oklahoma City, Okla., succeeding Fred Capshaw. Mr. Walker has also become chairman of the commission.

Correction

The Virginian was incorrectly reported in the tabulation on page 236 of the January 24 issue of *Railway Age* as having purchased 1,000 gear from the Waugh Equipment Company in 1928. The total number of Waugh gear in service on this line is 36 units, 34 of which are installed on electric locomotives and two on a 120-ton gondola car.

Bill for Interest Refunds Favorably Reported

The Senate committee on interstate commerce on February 3 favorably reported to the Senate the bill S.3199, authorizing refunds to certain railroads of interest amounting to \$48,852 erroneously collected by the government on account of overpayments under sections 209 and 212 of the transportation act.

Express Agency Appeal Rejected

The Supreme Court of the United States on February 2 upheld a decision of the supreme court of appeals of Virginia affirming an order of the Corporation Commission of Virginia that had denied the Railway Express Agency, Inc., a certificate of authority to do an intrastate business in that state without taking out a charter in Virginia.

Motor Coach Lines Cut Fares

At a meeting in Kansas City this week, 12 motor coach lines operating in the Southwest lowered their passenger fares to two cents a mile effective February 5; this in order to meet the two-cent rate on the St. Louis-San Francisco and other railroads in the Southwest. In addition the motor coach lines agreed to allow passengers a 10 per cent reduction on round trip tickets.

P. R. R. Supplants Rail Service With Bus in N. J.

The Board of Public Utility Commissioners of New Jersey in a recent order approved municipal consents which had been obtained by the Pennsylvania General Transit Company, highway subsidiary of the Pennsylvania, for the operation of buses between Flemington and Lambertville, N. J. This highway service is being provided in lieu of rail motor car service, formerly operated by the Pennsylvania on its Flemington branch.

Discontinuance of rail service over the branch was permitted in a previous order of the commission. Testimony in this latter case showed that the total passenger train revenue received by the Pennsylvania in the operation of its

rail motor car on the line amounted in 1929 to \$6,506.11, whereas the cost of the rail service was \$13,471.91. The route is approximately 12 miles in length.

Grain to Move Via Hudson Bay This Year

A test movement of two or possibly three cargoes of grain, about 750,000 bushels, will be shipped through the port of Fort Churchill on Hudson Bay the middle of next September, according to present plans. A conference held here with representatives of shipping interests indicated that there will be no difficulty getting private steamship companies to undertake the movement.

Motor Vehicle Bill Before Missouri Legislature

The Missouri legislature has before it a bill which would give the state Public Service Commission jurisdiction over all common carrier motor coaches and trucks, whether or not operated on fixed routes. The bill provides that truck lines must secure certificates of convenience and necessity, and fixes a schedule of license fees ranging from \$10 to \$910, depending on the size of the truck.

Accounting Officers to Meet in Chicago

"Having in mind the existing business conditions," reads an announcement issued by G: T. Bunting, vice-president of the Illinois Central and president of the Railway Accounting Officers Association, "and conforming to the results of the canvass recently made of all members of the association, and with the consent and co-operation of our Mexican members, the executive committee has fixed Chicago as the place, and June as the time, for the 1931 convention of the Railway Accounting Officers Association."

Bill to Separate Pipe-Lines from Oil Business

A bill to subject oil pipe-line companies to the commodities clause of the interstate commerce act, intended to prevent them from engaging in any business other than that of a common-carrier and to divorce them from the producing, refining and marketing phases of the oil business was introduced in the House on January 29 by Representative Hoch of Kansas. The bill simply substitutes the words "common carriers subject to the interstate commerce act" where the present law uses the words "railroad company."

Motor Vehicle Bills Before Alabama Legislature

Several bills designed to strengthen the regulation of highway carriers operating in Alabama have been recently introduced in the legislature of that State. One of the measures provides that the Alabama Public Service Commission in prescribing rates for these carriers shall give consideration to the "character and value of the service to the public and the effect of such rates upon other transportation companies, if

any, and so far as possible avoid unreasonable competition with existing transportation agencies." The taxation factor of another of these bills calls for an assessment of one cent per mile for each trip on motor trucks of less than three tons capacity, three cents per mile on those of more than three tons and less than five tons capacity, and five cents per mile on all trucks of five tons or over. This bill would make the tax on buses one cent a mile for a ten-passenger vehicle, two cents per mile for those carrying between 10 and 20 passengers and three cents per mile for all busses of more than 20-passenger capacity.

Arizona Train Limit Law Hearing Resumed

The hearing in the United States District Court of the suit of the Atchison, Topeka & Santa Fe and the Southern Pacific to enjoin the enforcement of the Arizona law which limits the length of freight and passenger trains operated in that state was resumed at Phoenix, Ariz., on February 2 with the presentation of additional testimony by witnesses for the Southern Pacific. The main case for the state with K. Berry Peterson, attorney general of Arizona, as the defendant, was closed at Phoenix on December 19.

National Office Management Association Award

The National Office Management Association, at its annual meeting in June, will make the first of its Leffingwell Medal awards. This award, donated by W. H. Leffingwell, president of the Association, is designed to recognize "outstanding accomplishment in office management." The competition is open to all, membership in the Association not being a condition of participation. Information on the awards may be obtained from H. C. Pennicke, secretary, National Office Management Association, 8 East Market Street, Indianapolis, Ind.

Honor Medals Awarded

Upon recommendation of its committee on award of medals of honor, approved by the Interstate Commerce Commission, the President has awarded medals of honor to Alfred G. Gish, of Shawnee, Okla., an engineman employed by the Chicago, Rock Island & Pacific, and to John A. Lugar, of Pana, Ill., a signal man employed by the Cleveland, Cincinnati, Chicago & St. Louis, for acts of heroism in averting serious casualties. The applications were submitted by Hal S. Ray, director of personnel of the Rock Island, and by President Crowley, of the New York Central.

Seattle Safety Meeting

A regional meeting of the Safety Section of the American Railway Association was held in Seattle, Wash., on January 22 with an attendance of 397 railroad men. The program of the meeting, of which C. L. LaFountaine, general safety supervisor of the Great Northern was chairman, included an address by

C. T. Bailey, first vice-chairman of the section; discussions on transportation accidents; accidents in mechanical departments; accidents in maintenance of way departments; and ways and means for reducing highway crossing accidents. During a luncheon, F. M. Metcalfe, superintendent of safety of the Northern Pacific, was toastmaster and H. A. Rowe, chairman of the section, was the principal speaker.

Two-Cent Passenger Fares in Effect

Two-cents-a-mile passenger fares for coach service went into effect on February 1 in a considerable section of the Southwest and also in parts of Kentucky, Tennessee, Mississippi and Alabama, the Interstate Commerce Commission having declined to suspend tariffs filed by the St. Louis-San Francisco establishing this reduced rate throughout its system. This in spite of the protest filed by the Missouri Pacific, the St. Louis Southwestern and the Missouri Kansas-Texas. The Mobile & Ohio had also filed a similar tariff and the Illinois Central established similar rates between competitive points. Seven southwestern lines also applied for authority to establish similar fares on short notice between competitive points, which was granted by the Commission.

Club Meetings

Alexander Legge, chairman of the Federal Farm Board, was the speaker at a luncheon given by the Traffic Club of Chicago on January 28.

The St. Louis Railway Club will hold its next meeting at Hotel Statler, St. Louis, Mo., on Friday evening, February 13. J. W. Cummins, chief inspector of the Illinois State Department of Agriculture, will discuss the activities of his department as affecting the railroads.

The Railway Car Men's Club of Peoria & Pekin (Illinois) will hold its next meeting at the Union Station, Peoria, on Friday evening, February 20. The discussion will be on the changes in the interchange rules.

The Traffic Club of Pittsburgh (Pa.) will hold its annual dinner at the William Penn Hotel on Thursday, March 5.

New Jersey Highway Route Denied P.R.R.

The Pennsylvania General Transit Company, highway subsidiary of the Pennsylvania, was one of three petitioners whose applications for permision to install bus strvice between Jersey City and Atlantic City, N. J., were recently denied by the Board of Public Utility Commissioners of New Jersey. The other applicants were the Public Service Interstate Transportation Company and the Nevin Bus Line.

The entire route proposed by the Pennsylvania General Transit Company would have extended from New York City through Jersey City and thence to Atlantic City. In denying the applications the Board found that much of the demand for through service along the proposed route was supplied by buses operating solely in interstate traffic from New York

to Atlantic City and intermediate points. In addition, the decision pointed out, two railroads provide direct service between the terminals of the route and by connection with their various branches provide a local service between municipalities intermediate to the terminals.

California Fruit Rate Case Assigned for Argument

The Interstate Commerce Commission has assigned two days, March 4 and 5 for oral argument on the California deciduous fruit case, in which the California Growers' & Shippers' Protective League has instituted a new proceeding for a reduction in the rates from California to eastern points, after the Supreme Court had held invalid the commission decision reducing the rates under the Hoch-Smith resolution. The league filed a new complaint on which hearings have been held asking for lower rates under section 1 of the interstate commerce act than the commission had allowed under the resolution. Part of the time is to be allotted, however, to a similar case involving rates on apples from the Pacific northwest on complaint filed by the Department of Public Works of Washington.

Manufacturers' Railway Offers Car-Ferry Settlement

The Manufacturers' Railway has submitted a new proposal to St. Louis (Mo.) city officials for a compromise of obligations of the company under the terms of a franchise granted it in 1905. The railway has asked the City Board of Estimate and Apportionment to dismiss the suit for \$90,000 filed several years ago. In return the company offers to pay the city \$51,000 at once and \$3,000 a year for ten years and \$5,000 a year thereafter. The franchise stipulated that the railroad should build a sevenmile East Side belt line and operate car ferries across the Mississippi river; and also pay the city \$5,000 a year from 1908 to 1918, and \$10,000 a year thereafter. The ordinance also provided that the company should forfeit \$25,000 if it did not construct the inclines for the car ferries or the East Side belt line.

Court Enjoins I. C. C. Order to Construct Oregon Line

The United States circuit court of appeals at Portland, Oregon, on January 29 enjoined the Interstate Commerce Commission from enforcing its order requiring the Oregon-Washington Railroad & Navigation Company to construct a railroad from Crane, Oregon, to Crescent, 185 miles. The opinion, in which each of the three judges in the case concurred, was based upon the question of the authority of the Interstate Commerce Commission to order the construction of branch lines, and the sufficiency of the testimony to justify the order if authority for it be found. The court construed the Transportation Act of 1920 to mean that the authority of the commission may be limited to such extensions of line as are reasonably necessary to reach communities and industries which the carrier has professed to serve or to an undertaking which the railroad has expressly or impliedly assumed. When the act is interpreted in that manner the commission's order exceeds the authority of the commission and is void, the court stated. It is expected that the commission will appeal.

C. P. R.'s Revenues Increase

The net revenues of the Canadian Pacific for the month of December were \$4,-161,519, an increase of \$1,008.251 over the corresponding period of 1929. Due to this substantial increase the net for the 12 months, \$38,348,558, or a decrease of \$4,895,885 from 1929, is much better than might have been originally expected, following the long series of declines in revenues month by month over the past year.

Gross for the month was \$16,324,469, an increase of \$807,237 over 1929, this being the most encouraging feature of the statement. Expenses were further cut by \$202,-014, totaling \$12,162,949, and making net for the month \$4,161,519, against \$3,153,-

268 in the like month of 1929.

Gross for the year ended with December was \$180,900,804, and expenses \$142,652,-145, decreases of \$28,830,151 and \$23,934,-265, respectively. Net for the 12 months, accordingly, was \$38,348,658, which compared with \$43,144,543 in the like period

The following table shows gross revenues, expenses and net of the company for the month of December, and for the 12 months of the fiscal year ended Decem-

	DE	CEMBER	
Gross Exp.	1930 \$16,324,469 12,162,949	\$15,518,232 12,364,963	Decr. * \$806,237 202,014
Net	\$4,161,519 TWEL	\$3,153,268 VE MONTHS	*\$1,008,251
Gross Exp.	1930 \$180,900,804 142,652,145	1929 \$209,730,955 166,586,411	Decr. \$28,830,151 23,934,265
Net	\$38,343,658	\$43,144,543	\$4,895,885

^{*} Increase.

A. H. Elder Discusses Railway **Taxation Problem**

Proposals to place competition between railways and highway carriers on a fair basis should include some plan for reducing unduly heavy railway taxes as well as suggestions for taxing buses and trucks adequately for their use of the highways, according to Alexander H. Elder, general solicitor, Central of New Jersey. Mr. Elder expressed this view in an address on taxation before the Traffic Club of Newark, N. J., on January 22.

"A great deal has been recently said regarding equality of treatment by the public as between railroads and competitors," Mr. Elder said. "Some have jumped at the conclusion that this means burdening buses and trucks with regulations and taxation so that their expenses and therefore their rates and fares must be raised to the point where traffic will flow back to the railroads..... Granting that the existing discrimination against the railroads must be alleviated, if they are to continue efficient, yet if the discrimination is to be treated along sane lines it must be done in part by relieving the railroads of their tax burden rather than solely by burdening highway traffic.' Mr. Elder's address was concerned

mainly with railway taxes in New Jersey. He called attention to the decline in the number of industrial establishments and wage earners in that state since 1919 and, comparing these figures with similar statistics from other parts of the country, concluded that the industrial development of New Jersey has not kept pace with that of other sections. One reason for this, the speaker thought, was the great increase in railroad taxes in New Jersey. Railroad taxes, he continued, are "in the nature of a surtax that industry must pay in the form of freight rates." New Jersey, Mr. Elder said, leads all states in railroad taxes; its assessments on railroads rose from \$720 a mile in 1900 to \$9,165 a mile in 1928 or 1173 per cent, while railroad taxes in the country as a whole were rising 555 per cent or from \$261 per mile in 1900 to \$1,711 per mile in "New Jersey not only heads the list," he added, "but its taxes per mile of road are nearly twice as great as those of any other state."

The speaker also quoted statistics of railroad taxes in the country as a whole. pointing out that the increase of about \$125,000,000 since 1920 means that "about one-eighth of the fair return on railroad value, which Congress and the Interstate Commerce Commission thought necessary to assure an efficient national transportation system, has been diverted by the

states to local purposes.'

"Instead of conflict over rates," he added, "would it not benefit the public more if shippers organizations and railroad managements joined hands with all other taxpayers in demanding a reduction in the common tax burden which in 1930 injected 6.6 cents into every dollar of freight charges?"

P. & W. Va. Completes Connellsville Extension

Completion of the largest piece of new railroad construction in the Eastern states in many years, the 38-mile Connellsville extension of the Pittsburgh & West Virginia, will be marked this week or next by an official inspection trip. The new line will go into operation on February 11, hauling the products of the Monongahela Valley coal and industrial community and serving several industries, the largest of which is the American Steel & Wire Company plant at Donora, Pa. The extension, which runs from Cochran's Mills, Pa., near Clairton, to Connellsville, where it joins the Western Maryland, cost about \$15,000,-000 and has been under construction for more than two years. It was described in detail in the Railway Age of August 16, 1930, page 320.

C. & W. I. Upheld in Dearborn Station Facility Use

The Illinois Commerce Commission on January 29 authorized the Chicago & Western Indiana to continue the use of 13 tracks crossing Plymouth court and Taylor street in Chicago and providing the railroad with lead tracks to mail and express facilities and suburban train platforms at the Dearborn station. This authorization disposes of an order of the city requiring the removal of the

tracks from the streets on the ground that ordinances allowing their use had expired and of the contention of the city that the state commission has no jurisdiction over railroad-highway crossings within the city limits. The commission ordered the railroad to establish 24-hour flag service at the crossings, with two flagmen. The order of the city, if observed, would have deprived the railroad of the use of about half of the facilities at the Dearborn station.

Two-cent Fares

The Chicago & North Western has established a two-cent fare on seven sections of the system to be effective from February 1 to April 30. If the low fares are successful in increasing patronage during this period they will be extended to other parts of the system. The lines over which the fares will be effective are between Madison, Wis., and Platteville and Lancaster, between Green Bay and Laona, between Sterling, Ill., and Peoria; between Rochester, Minn., and Tracy, between Watertown, S. D. and Gettysburg, between Des Moines, and Algona, and between Norfolk, Neb. and Niobrara.

The adoption of the two-cent rate by western railroads was started in October, 1930, when the Texas & Pacific applied to the Railroad Commission of Texas for authority to establish low fares in coaches between Ft. Worth, Tex., and Big Spring. In the following month the railroads operating between Chicago and the Pacific Coast announced that they would establish, on January 1, three classes of fares between Chicago and the Pacific Coast, of which the lowest amounts to 2.3 cents a mile. Texas-Mexican, in November, following the establishment of a two-cent rate on the Texas & Pacific applied to the Railroad Commission for permission to place a two-cent rate in effect between Laredo, Tex. and Corpus Christi. In December, the Chicago, Milwaukee, St. Paul & Pacific was granted permission by the Railroad Commission of Wisconsin, the Iowa Board of Railroad Commissioners and the Minnesota Railroad and Warehouse Commission to establish a two-cents-a-mile rate in those states for a three-months' period beginning January 1. In the same month the Quanah, Acme & Pacific applied to the Railroad Commission of Texas for permission to reduce its passenger fare to two cents.

The most extensive application of the low rate occurs on the St. Louis-San Francisco which recently received permission from the Interstate Commerce Commission to establish a two-cent fare good between all points on the system. In January the Missouri Pacific applied to the Railroad Commission of Texas for permission to establish a two-cent rate in rail motor coaches between Austin, Tex. and San Antonio. waukee, in January, extended its application of two-cent fares to certain lines in South Dakota, while the Mobile & Ohio filed tariffs with the Interstate Commerce Commission reducing fares on the system to two cents a mile to

(Continued on page 346)

Revenues and Expenses of Railways Month of December and Twelve Months of Calendar Year 1930

Aı	Av. mileage				1		-Operating	g expenses-				Net		1	Net ry.
Dec. 12 mos. 12 mos.	during period. 171 171 9,626 9,629	Freight \$139,4 \$139,4 9,560,9	Operating revenues. Passenger, (inc. \$114 \$ \$132 \$ 2,098,925 13, 29, 28,539,,138 185, 29, 28,539,,138 185, 29, 28,539, 38 185, 29, 28,539, 38 185, 29, 28, 29, 29, 28, 29, 29, 29, 29, 29, 29, 29, 29, 29, 29	Total (inc. misc.) \$146,146 2,720,402 13,171,137 185,261,863	Manutenance Way and E structures. p. \$32,368 \$ 443,457 \$ 1,821,389 \$ 2,8777,78 \$ 37,2	### Sand Sand Sand Sand Sand Sand Sand Sand	Traffic. \$14,164 168,939 413,024 5,029,877	Trans- portation. \$56,24 780,397 4,143,036 54,903,986	General. \$22,871 214,161 +60,376 5,387,018	Total. \$144,522 1,863,366 9,589,416 129,875,090	Operating ratio. 98.9 68.5 72.8 70.1	from railway operation. \$1,624 857,036 3,581,721 55,386,773	Operating income (or loss). \$25,589 811,188 2,380,034 38,831,969	Net ry. operating income. \$9,968 547,355 2,282,442 38,443,607	operating income, 1929. \$5,065 992,094 2,523,317 59,149,787
12 mos. 12 mos. 12 mos.	1,958 1,958 1,718 1,615	1,579,487 22,397,877 871,067 13,678,534	119,396 1,627,153 83,528 1,013,880	1,821,444 25,510,585 1,042,568 15,648,596	256,114 4,394,870 262,044 3,287,203	367,644 5,044,998 240,147 3,154,966	58,229 690,679 21,754 244,132	7,775,908 280,614 4,413,908	79,292 896,783 43,657 473,364	1,272,949 18,603,125 829,565 11,442,407	72.9 79.6 73.1	548,495 6,907,460 213,003 4,206,189	443,048 5,701,655 126,253 3,645,654	328,165 4,168,968 12,294 2,263,892	634,603 6,033,220 154,959 4,442,379
12 mos. Dec. 12 mos.	93 133 133	1,560,705 1,560,705 1,759,171	36,924 460,669 40,986 495,801	167,309 2,339,981 182,743 2,508,623	28,251 329,460 20,283 312,525	32,537 432,412 42,292 523,767	11,040 141,982 11,443 145,692	61,579 934,070 61,473 889,297	12,224 146,936 12,032 152,712	2,038,614 149,734 2,067,018	88.9 87.1 82.4	18,530 301,367 33,009 441,605	14,499 157,224 20,290 269,465	374 14,502 29,540 325,919	200,436 43,135 434,117
CoastDec.	639 5,160 5,156	250,798 3,440,443 4,050,431 46,428,030	15,052 204,063 736,463 10,538,340	304,819 4,098,580 5,402,472 63,019,957	80,905 979,939 722,147 9,787,465	76,710 918,150 1,061,810 12,513,107	26,925 335,969 170,710 2,015,053	1,752.054 1,910,714 22,643,244	19,054 238,492 171,590 2,099,809	361,965 4,354,938 4,093,233 49,685,460	118.7 106.3 75.8 78.8	256,358 1,309,239 13,334,497	77,708 -447,921 851,834 7,779,646	—96,124 —659,657 686,527 7,241,304	257,461 956,698 12,874,207
CarolinaDec. 12 mos. 12 mos.	342 3,653 5,657	2,604,220 11,200,441 173,706,337	6,523 88,924 1,427,717 18,567,622	202,618 2,795,654 13,798,818 206,660,435	34,182 567,091 1,105,232 22,442,383	34,654 444,445 2,607,611 41,693,160	6,710 86,781 474,029 6,269,933	86,871 1,061,246 5,161,854 72,500,106	6,241 87,736 656,591 8,145,895	168,658 2,247,308 10,164,993 153,142,374	83.2 80.4 73.7 74.1	33,960 548,346 3,633,820 53,518,061	16,067 327,210 3,174,128 43,162,624	20,496 299,006 3,067,790 40,248,614	31,880 460,157 2,441,903 49,184,110
ic. TermDec. 12 mos. TransitDec.	25288	57,288	113,327	267,298 3,851,975 178,474 2,448,959	Cr. 12,536 517,156 8,962 198,699	40,914 471,163 13,806 188,345	2,852 29,068 2,089 25,995	1,932,482 1,932,482 103,808 1,212,677	20,155 222,059 16,058 203,994	3,238,306 144,723 1,829,710	74.0 84.1 81.1 74.7	69,529 613,669 33,751 619,249	141,554 91,802 17,659 409,737	203,397 1,371,081 5,997 298,132	1,426,347 1,426,347 77,226 460,515
12 mos. 12 mos. 12 mos.	619 619 57 57	7,442,917	50,646	681,920 8,365,757 455,015 6,803,387	126,846 1,434,511 16,603 574,595	1,503,103 37,999 715,378	5,071 66,968 3,028 47,538	1,997,747 206,690 3,201,310	24,948 319,128 9,647 139,297	5,350,238 273,967 4,678,118	73.7 64.0 60.2 68.8	3,015,109 3,015,519 181.048 2,125,269	2,314,202 126,262 1,476,023	2,335,907 143,223 1,807,727	2,277,600 146,983 1,798,069
	333	418,286 14,458,741 26,247 356,858	3,371	434,690 14,712,458 26,875 367,195	1,285,951 6,735 79,825	351,871 3,991,545 3,663 80,416	13,433 180,028 1,641 18,649	209,387 3,345,611 Cr. 6,767 83,668	40,714 438,243 4,506 59,075	719,036 9,270,670 9,893 322,937	165.4 63.0 36.8 87.9	5,441,788 16,982 44,258	4,767,620 4,767,620 14,320 -24,369	4,760,684 32,105 174,428	102,512 7,444,605 14,379 244,296
erm Dec.	2.089 2.090 111	3.268,007 45,241,697 85,919 1,287,335	1,242,563	5,371,276 69,278,336 87,645 1,311,112	912,335 11,668,430 6,532 116,318	10,213,945 13,214 169,638	83,429 1,078,823 4,401	1,899,140 24,999,189 34,510 435,699	207,350 2,615,301 6,985 63,854	3,861,081 50,865,607 61,265 794,810	71.9 73.4 69.9 60.6	1,510,195 18,412,729 26,380 516,202	1,228,029 14,874,103 20,057 434,337	993,809 12,251,159 20,057 434,337	609,470 12,642,198 26,811 453,842
Pittsburgh Dec.	253 253 601 601	1,659,831 1,630,239 14,160,378	535 7,571 54,010 651,093	1,826,792 1,826,792 1,132,614 15,364,002	12,566 309,448 122,340 1,967,660	40.890 512.610 271,339 3,998.637	24.825 40,482 446,877	50,458 538,770 480,804 5,975,602	10,002 99,777 44,364 524,855	114,893 1,484,176 958,481 12,922,537	81.2 84.6 84.1	42,748 342,616 174,133 2,441,465	41,309 330,208 173,994 2,075,419	57,763 473,084 197,330 2,227,505	44,183 344,329 188,949 2,910,286
Maine Dec. 12 mos.	367 367 233 233	2.052,350 200,234 1.985,631	3,743 52,817 33,654 350,643	2,197,609 245,631 2,505,954	69,269 1,165,328 43,273 588,062	22,231 334,924 68,547 616,388	7,208 80,338 8,184 93,691	72,932 879,902 118,963 1,113,812	14,973 182,336 3,966 50,777	2,527,603 242,859 2,462,656	103.1 115.0 98.8 98.2	5,544 329,994 43,298	-15,148 -427,286 -1,672 -100,146	-50,818 -795,925 -33,251 -336,780	-317,541 402,893 1,220 -282,820
ermontDec.	855 1.944 1,944	68,043 1,152,080 1,113,990 16,288,838	361.077 361.077 188.816 2.725.868	111,345 1,790,949 1,464,458 21,082,429	18,726 289,182 124,402 2,192,546	27,988 375,470 252,989 3,504,784	2,112 24,526 61,524 816,472	80,638 1,036,051 654,220 8,505,211	2,772 30,842 81,437 983,715	1,755,984 1,180,182 16,123,140	118.7 98.0 80.6 76.5	20,891 34,965 284,276 4,959,289	25,071 13,635 251,101 3,628,263	55,462 -382,356 237,785 3,668,811	22,593 264,489 373,907 4,508,457
	692 692 462 465	39,924,298 401,203 5,852,855	601.394 8.431.086 69.720 980.548	3,618,285 51,753,823 7,584,733	280.840 4.958.726 97,963 1.321.839	743.195 10.799.653 91.269 1.242.065	55,186 713,346 17,088 218,716	1,529,265 19,845,774 242,848 3,207,829	1,540,382 27,220 302,986	2,763,570 38,167,251 478,085 6,316,992	76.4 73.7 90.8 83.3	854,715 13,586,572 48,260 1,267,741	8,542,137 37,347 1.079,300	307,772 7,152,607 52,934 1,270,775	737,504 9,367,044 71,808 1,805,843
	3,119 3,113 1,628 1,028	9,233,705 125,833,666 1,077,497 17,343,839	426,247 1 5,529,702 13 336,555 4,380,324 2	10,051,922 137,230,375 1,630,369 24,265,192	1.189.030 18.592,519 163.357 3.409,189	1,947,491 26,836,471 486,733 5,692,256	170,245 2,011,614 75,909 927,005	2.720,142 34,977,342 760,142 9.514,394	373,842 4,276,459 111,062 820,488	6,426,090 86,966,517 1,608,274 20,506,554	63.9 63.4 98.6 84.5	3,625,832 50,263,858 22,095 3,758,638	2,706,317 39,952,338 —97,881 2,360,189	2,765,888 40,523,227 288,861 64,301	3,362,024 43,939,553 163,395 3,278,828
Illinois1bec.	946	5.387.823	2,618,533 1	1,370,598	2,210,562	*5.045.867 9.280.045	55.376	8.306.537	64.174	5,881,916	429.1	4,511,318	-4,675,198 -3,606,086	-4,815,441	96,340

* Includes \$4,700,000 special retirement of equipment,

Revenues and Expenses of Railways Month of December and Twelve Months of Calendar Year 1930—Continued

Name of road Chicago & Illinois MidlandDec. Chicago & North WesternDec.	Av. mileage operated during period. c. 131 se. 131 c. 8,458	Freight \$272,2- 2,982,2- 5,963,0.	Operating revenues 1. Passenger. (inc. \$3,907 \$4 \$2,788 \$3 \$2,788 \$3 \$4 \$1,481,145 \$3 \$19,366,435 \$130	tinc. Total (inc. misc.) \$286,106 3,155,470 8,726,872 130,030,474	Maintenance of May and Equip. structures. ment. \$26,806 \$52.07 \$46,537 1,256,387 1,534,219,195,308 24,389,31	Equip. Equip. ment. \$52,074 622,438 1,534,200 24,389,363	-Operating Traffic. \$20,341 254,059 195,499 2,601,531	g expenses— Trans- portation. \$88,206 \$98,036 3,708,145 49,853,180	General. \$22,765 292,274 383,151 4,621,582 10	Total. \$202,412 2,402,612 7,116,765	Operating ratio. 70.7 76.1 81.6 77.7	Net from railway operation. \$83,694 752,858 1,610,107 28,939,050	Operating income (or loss). \$73,414 650,642 1,335,844 20,455,027	Net ry. operating income. \$57,326 \$65,496 1,135,523 17,432,851	Net ry. operating income, 1929. \$70,548 \$66,333 26,220,149
Chicago, Burlington & QuincyDec. Chicago Great WesternDec. 12 mos.	9,324 9,332 1,495 1,495	8,524,999 1111,157,128 1,394,863 19,114,782	1,119,342 15,360,186 145,166 1,977,957	10,879,800 141,379,422 1,685,205 22,830,321	1,215,909 20,311,640 181,469 3,345,432	2,631,915 22,553,488 148,274 2,772,638	3,456,600 79,089 997,809	3,791,034 46,922,911 628,698 8,776,051	360,999 4,426,143 62,908 654,441	8,338,685 98,877,814 1,099,638 16,580,399	76 6 69.9 65.3 72.6	2,541,115 42,501,608 585,567 6,249,922	1,849,676 31,279,532 498,781 5,162,653	1,459,521 27,956,064 274,206 2,853,179	2,536,036 35,357,963 221,056 2,801,534
Chicago, Indianapolis & LouisvilleDec. Chicago, Mil., St. Paul & PacificDec. 12 mos.	c. 647 s. 11,325 c. 11,325 s. 11,313	820,672 11,772,669 7,776,034 115,638,093	1,499,919 1,001,245 12,681,684	1,047,515 14,725,077 9,927,508 142,569,632	77,723 1,688,646 1,148,486 22,354,246	238,448 3,087,111 2,178,512 28,181,134	34,668 459,383 287,580 3,824,992	375,842 5,446,330 4,052,930 53,124,009	33,209 422,707 344,649 4,411,557	761,714 11,188,393 8,049,514 112,295,805	72.7 76.0 81.1 78.8	285,801 3,536,684 1,877,994 30,273,827	203,443 2,591,732 1,248,004 20,753,597	93,967 1,138,760 833,475 15,954,548	237,256 2,603,564 1,456,616 26,274,323
Chicago River & IndianaDec. Chicago, Rock Island & PacificDec. 12 mos.	c. 20 s. 20 c. 7.592 s. 7,592	6,082,136	1,147,142	446,497 6,124,611 8,103,460 116,384,319	40,280 583,280 796,854 14,428,094	41,229 529,829 1,546,494 20,623,623	1,705 18,409 228,799 2,988,431	2,133,744 3,218,577 43,175,316	19,144 223,014 340,989 4,117,954	252,025 3,488,276 6,238,052 86,260,291	56.4 57.0 77.0 74.1	2,636,335 1,865,408 30,124,028	2,294,999 1,329,974 23,194,595	3,204,483 956,241 18,063,976	265,294 3,659,575 2,000,881 21,971,128
Chicago, Rock Island & Gulf,Dec. Chic., St. Paul, Minn. & OmahaDec. 12 mos.	c. 625 s. 591 c. 1,736 s. 1,740	390,885 5,509,556 1,296,409 19,264,179	46,515 662,367 223,329 3,202,983	479,100 6,695,591 1,655,196 24,436,288	63,983 891,718 290,624 3,731,981	44,070 600,875 463,516 4,788,218	20,286 251,612 38,197 487,716	2,272,584 831,669 10,362,239	20,619 257,290 89,463 1,029,154	313,865 4,291,467 1,727,399 20,516,903	65.5 64.1 104.4 84.0	2,404,124 2,404,124 72,203 3,919,385	2,102,283 2,102,283 161,997 2,640,885	1,683,831 254,639 1,659,994	298,247 2,877,781 2,968,733
Colorado & Southern	c. 309 s. 309 c. 1,037 s. 1,038	464,575 5,784,098 719,598 8,546,733	9,417 110,016 51,031 827,700	482,859 6,016,063 854,352 10,302,742	57,930 678,241 109,885 1,529,093	1,517,094 1,517,094 153,458 1,965,478	20,203 251,314 14,507 189,491	1,339,007 298,707 3,618,581	16,451 213,674 41,709 500,395	337,090 3,998,345 620,057 7,837,951	69.8 66.5 72.6 76.1	2,017,718 234,295 2,464,791	69,765 1,181,468 187,798 1,647,536	1,927,195 1,927,195 176,841 1,384,364	209,123 2,713,355 234,204 1,774,618
Ft. Worth & Denver CityDec. Wichita ValleyDec. 12 mos.	c. 696 s. 696 c. 270 s. 271	535,524 7,481,965 73,077 794,863	98,271 1,286,080 1,900 31,618	693,102 9,484,711 78,121 879,461	73,908 1,266.764 12.701 273,758	126,002 1,649,979 4,419 61,987	20,143 251,608 65 565	3,009,730 27,449 347,379	41,942 471,501 1,704 21,156	490,856 6,675,898 46,338 705,286	70.8 70.4 59.3 80.2	202,246 2,808,813 31,783 174,175	2,291,388 2,291,388 25,899 87,518	2,163,713 18,110 -122,164	269,588 3,503,073 16,234 284,298
Columbus & GreenvilleBec. Conemaugh & Black LickBe. 12 mos.	c. 167 s. 167 c. 20 s. 20	1,356.088 23,055 777,447	11,972	1,598,382 1,598,382 48,961 1,390,983	24,400 400,048 Cr. 3,425 138,595	20,568 239,469 14,707 238,188	4,409 51,162 418 9,082	39.500 570,044 37,237 794,183	13,432 144,935 5,044 45,034	98,409 1,398,072 53,981 1,225,082	81.1 87.5 110.3 88.1	22,895 200,310 -5,020 165,901	10,791 142,287 6,679 156,242	11,639 116,976 2,806 188,797	32,335 265,507 21,683 403,746
Delaware & HudsonDec. Delaware, Lackawanna & WesternDec. 12 mos.	99999	2.508.723 32.730,584 4.031,887 50,786,462	2,732,449 795,821 10,115,126	2,863,457 37,906,143 5,557,855 69,661,490	656,715 5,787.394 465.353 6,788.470	8.825.638 1.091.469 12,879,781	52.671 695.823 136,400 1,715,242	1,077,008 13,447,919 2,379,803 28,602,066	151.663 1,887.614 177.374 2,124,843	2,662,442 30,735,472 4,293,771 52,612,853	93.0 81.1 77.3 75.5	201,015 7,170,675 1.264,084 17,048,637	5,731,049 764,149 10,963,397	5,868,962 782,856 11,159,923	639,514 8,164,740 1,616,770 17,508,587
Denver & Rio Grande WesternDec. Denver & Salt LakeDec. 12 mos.	2.524	1,951,939 24,951,021 250,568 2,835,677	2,594,860 11,411 149,735	2.281,300 29,747,537 277,165 3,197,282	3,862.180 29,287 626.161	5,577.686 46,771 641,779	62.391 727.410 1.923 26,836	731,624 9.179.737 43.664 513,896	92.231 1,091,383 21.491 180,930	1,565,947 20,693,801 143,136 1,974,951	68.6 69.6 51.6 61.8	715,353 9,053,736 134,029 1,222,331	\$13,887 6,878,640 123,988 1,037,188	523,666 6,940,942 131,814 1,123,753	\$90,656 8,528,676 234,759 1,679,287
Detroit & Mackinac	242 249 50	45,994 887,484 298,799 3,667,443	7,057	61,933 1,082,774 303,303 3,725,251	11.129 302.397 40.130 479.883	15.559 196.820 27.199 361,701	. 24.144 7.994 91.057	27,712 407,447 75,590 959,986	2.443 66.388 Cr. 5.099 116,620	58,312 959,901 145,813 2,007,577	94.2 88.7 53.9	3,621 122,873 157,490 1,717,674	4,949 31,192 135,148 1,443,601	27,683 74,969 707,467	42,226 236,744 29,823 739,901
Detroit Terminal	5. 509 5. 510	542,265	1,431	80,305 1,361,663 557,741 10,163,777	7.832 192.004 72.061 1,372.601	9,475 139,360 108,539 1,344,710	13.036 159,910	43.925 705.419 199.332 2.848,886	3,984 52,210 39,649 414,745	65.216 1,089,077 431,062 6,130,707	81.2 80.0 77.3 60.3	15,089 272,586 126,679 4,033,070	29,695 89,695 129,131 3,500,312	1,402 102,036 109,990 3,156,870	26,329 565,274 54,608 4,501,659
Duluth, Winnipeg & PacificDec.	564	96.259	5,774	131,099	2,882.046	346,294	4,113	217,164	570,921	842,516	55.0	711,417	7,666,469	7,712,410	627,592
Elgin, Joliet & Eastern	447 452 2.046 2,046	1.275,280 19.754,241 5.259,949 77,755,404	2.484 732.706 9.395,690	1,403.976 21,807.616 6.603.620 95,372,547	208,419 2.681,519 444,896 11,529,347	365.468 3.610.048 1.763.955 21,476,741	17.896 191.244 166,350 2.111,547	610,400 8,472,863 2,790,916 37,021,850	58.811 650.823 314.731 3,605,589	1,260,705 15,544,545 5,510,403 76,147,961	89.8 71.3 83.4 10.8	143,271 6,263,071 1,093,217 19,224,586	6,061 4,875,585 844,427 14,738,818	3.014.144 879,666 13,689,974	85,632 5,452,263 1,084,163

Revenues and Expenses of Railways MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1930—CONTINUED

Net ry.	operating income, 1929. \$22,468 2,377,438 —11,288	76,450	19,169 121,031 -325 608,617	77,069 938,211 113,955	5,805,122 8,149 919,512	1,950,135 32,457,523 50,737 353,743	-32,817 -93,006 77,564 1,429,948	2,180,282 24,447,078 470,833 3,274,932	2,653,547 27,743,259 120,751 1,605,289	288,225 4,165,885 77,423 983,036	1,297,773 1,297,773 7,8,997 1,219,738	8,378 179,990 38,338 477,609	183,474 1,183,176 993,567 12,938,556	85,878 1,343,838 —6,462 —169,294	20,874,750
1	Net ry. operating income. \$25,346 1,337,218 —19,153	32,132	2,224 53,855 57,202 429,364	51,887 729,558 3,398 89,606	294,368 294,368 94,330 916,952	346,273 21,912,508 30,430 289,926	—19,279 —118,761 19,925 631,118	2,605,944 20,907,875 195,996 2,685,202	2,801,940 23,596,521 127,588 1,451,088	51,932 3,260,588 44,364 510,190	35,714 863,883 76,711 516,530	-9,539 42,045 4,146 242,708	158,459 1,097,774 817,173 8,537,808	79,649 1,264,387 —17,006 —185,703	1,269,467
•	Operating income (or loss). \$314,400 4,689,625 10,094 116,440	67,684 958,416	9,917 177,453 57,114 426,367	30,189 552,349 2,869 116,433	50,444 2,571,168 30,932 346,720	457,993 23,707,755 36,426 348,724	—6,024 44,889 47,118 1,004,997	2,608,187 21,489,686 301,212 3,964,125	2,909,399 25,457,255 155,438 1,927,747	82,323 3,889,554 56,405 913,363	1,113,923 75,522 550,706	6,673 95,899 20,115 436,987	157,615 1,172,949 945,544 9,827,189	90,643 1,689,147 —19,699 —69,743	1,306,079
Net	from railway operation. \$343,204 5,302,176 13,443	1,337,827	14,008 226,586 77,833 704,966	32,345 654,218 -14,102 192,327	168,599 4,197,237 —17,425 —182,480	971,169 32,430,198 51,160 459,533	-10,185 402,224 30,198 1,330,823	2,385,630 28,797,710 324,564 5,836,210	2,710,194 34,642,707 183,407 2,292,698	92,818 4,967,270 56,058 1,009,225	1,358,183 61,031 884,911	3,072 146,377 35,097 626,470	1,282,096 7,18,148 12,519,533	2,253,205 2,253,205 -10,678 -16,501	1,730,612
	Operating ratio. 66.0 61.1 88.1 88.0	73.1	84.7 83.0 56.8 62.6	90.0 85.9 113.3 88.7	90.2 84.0 111.6 109.3	84.5 69.1 62.9 74.0	106.8 84.4 91.65 77.43	74.3 77.0 79.6 74.9	75.1 76.7 68.24 69.39	90.6 70.0 66.5 60.0	73.0 56.1 232.2 60.8	106.2 85.1 79.9 72.2	71.7 74.7 84.2 79.4	69.8 67.7 118.0 101.8	73.6
	Total. \$664,969 8,321,287 99,887 1,247,862	3,371,792	77,782 1,105,900 102,468 1,177,883	291,733 3,988,605 120,298 1,502,810	1,554,460 22,045,869 166,813 2,139,190	5,307,732 72,565,878 86,704 1,309,698	2,174,927 331,388 4,566,789	6,898,132 96,295,503 1,262,965 17,460,138	8,161,097 13,813,198 394,018 5,198,237	890,628 11,605,448 1111,084 1,514,751	1,735,676 1,735,676 107,192 1,372,557	\$2,273 838,708 139,640 1,627,617	282,308 3,783,691 3,822,298 48,144,655	307,290 4,727,402 69,911 930,428	6,762,966
	General. \$44,249 518,920 3,602 44,292	142,353	6,293 77,165 16,040 89,442	24,052 276,032 6,177 95,406	97,811 1,259,093 10,089 111,936	180,409 2,801,602 3,717 36,568	6,517 80,344 26,791 301,797	359,249 4,318,842 65,044 776,876	5,096,516 1 41,130 496,710	95,584 948,976 13,348 150,723	16,059 142,188 11,085 82,082	1,882 26,819 13,238 123,500	17,280 318,211 138.871 1,706,824	25,609 315,248 5,080 62,279	359,827
g expenses-	Trans- portation. \$290,985 4,047,926 62,684 742,698	2,011,152	37,379 463,103 29,983 350,022	2,048,409 53,676 624,128	877,696 11,085,228 74,376 1,028,715	2,550,585 33,908,017 36,703 623,163	78,447 1,057,444 149,393 1,954,497	3,690,141 47,167,017 656,023 9,009,095	4,346,164 56,210,800 198,321 2,563,350	388,949 5,047,539 50,742 655,507	65,880 754,192 35,740 531,099	32,810 501,191 71,909 816,682	1,754,387 2,003,439 25,285,944	2,065.944 30.366 404.285	2,928,463
Operating	\$28,493 \$50,189 1,356	58,057	4,965 65,403 5,532 50,744	20,815 265,971 9,703 122,445	21,066 790,193 511 65,299	2,912,531 6,484 75,773	4,148 56,690 33,636 359,178	252,182 3,126,650 41,304 534,422	293,486 3,661,072 20,861 235,413	50,927 743,474 7,589 104,322	18,197 188,283 2,021 8,625	3,138	4,956 76.663 132.968 1,699,014	23,384 266,501 6,085 41,927	2,904,555
	ance of Equip. Equip. ment. \$132,294 1,668,086 25,893 261,701	568,040	255,236 4,813 67,862	59,278 883,208 21,995 273,188	298,408 4,824,727 35,166 495,861	1,568,010 18,544,614 31,828 278,580	31,868 401,679 68,965 956,255	1,772,419 27,076,787 247,051 3,759,688	2,019,470 30,858,546 76,149 992,450	213,124 2,873,976 12,850 249,869	29,695 308,857 33,390 342,905	8,170 139,720 31,394 365,973	76,991 1,006,579 1,006,676 13,198,354	52.572 1,040.344 15.003 169,083	27,389,404
	Mainten Way and structures, \$169,678 1,749,389 6,352 180,522	12,262 592,500	15,948 255,386 31,915 426,950	29,496 517,317 29,073 386,121	247,166 3,948,788 45,135 420,281	762,592 13,598,876 8, 418 296,484	37,197 545,831 52,348 991,588	768,824 13,684,713 250.021 3,328,931	1,018,845 17,013,644 58,669 931,714	138,283 1,949,659 24,350 311,566	31,653 355,660 24,956 408,391	9,411 170,978 19,981 280,859	46,318 628.182 514.830 5,925,266	62,381 1,039,075 13.385 253,959	1,217,860
	Total (inc. misc.) \$1,008,173 13,623,463 113,330 1,417,471	370,437	91,790 1,332,486 180,301 1,882,849	324,078 4,642,823 106,196 1,695,137	1,723,059 26,243,106 149,388 1,956,710	6,278,901 104,996,076 137,864 1,769,231	2,577,151 361,586 5,897,612	9,283,762 125,093,213 1,587,529 23,296,348	10,871,291 148,455,905 577,425 7,490,935	983,446 16,572,718 167,142 2,523,976	213,968 3,093,859 46,161 2,257,468	49,201 985,085 174,727 2,254,087	393,896 5,065,787 4,540,446 60,664,188	6,980,607 59,233 913,927	8,493.578
	Operating revenues, 2. Passenger. (inc \$2 \$43,399 \$1, 30 605,643 13, 88,951 10 1,093,281 1,	35,963	5,516	38,177 483,493 4,793 62,986	119,693 1,989,886 20,089 245,108	9,000,087 2,549 31,771	22,891 321,998 19,493 253,840	1,350,312 16,807,419 176,674 2,561,584	1,526,986 19,385,264 99,361 1,377,231	57,977 794,757 3,960 59,699	1,963 22,424 821 9,116	758	800 10.282 421,927 5,512,486	14,197 220,259 1,568 23,207	891.427
	Freight. \$891,782 11,988,830 20,468 269,910	3,822,640	80,260	247,393 3,785,485 92,543 1,544,808	1,445,951 22,453,664 104,657 1,493,209	4,808,391 85,797,850 131,968 1,673,199	1,965,017 322,128 5,384,462	7,169,281 97,951,868 1,293,421 19,230,175	8,462,702 117,232,122 450,302 5,749,400	801,160 14,095,655 147,770 2,194,447	207,190 3,009,610 41,532 1,946,938	164,884	390,040 4,989,238 3,727,989 50,287,945	401,611 6,441,490 54,943 854,109	6,982,070
Av. mileage	operated during period. 269 269 45 45	131	249 249 13 13	328 328 463 487	1,019 1,019 166 166	8,370 8,366 234 234	307 307 733 733	5,018 5,018 1,694 1,704	6,712	784 784 99	326 326 160 160	217 96 96	216 216 1,361 1,361	608 617 202 203	5,271
Y	Name of road Chicago & ErieDec. 12 mos. New Jersey & New YorkDec. 12 mos.	. Y., Susquehanna & WesternDec. ida East Coast 12 mos.	Fort Smith & Western	rgia R. R	and Trunk Western	tt Northern	& Ship IslandDec., Mobile & NorthernDec.	iois Central	ois Central SystemDec.	sas City SouthernDec. exarkana & Ft. SmithDec. 12 mos	sas, Oklahoma & GulfDec. 12 mos. Superior & IshpemingDec. 12 mos.	Terminal Dec. 12 mos. Bros. 12 mos. Dec. Dec. 12 mos. 12 mos. 12 mos. 12 mos. 13 mos. 13 mos. 14 mos. 15 mos.	gh & New England Dec. 12 mos. gh Valley Dec. 12 mos.	ouisiana & ArkansasDecDec	Louisville & Nashville
	N C	N. N Florida	Fort	Georgia	Grand	Green	Gulf,	Illinois	Illinois	Kansas Texa	Kansas, Lake S	Lake Lehigh	Lehigh Lehigh	Louis	Loui

Revenues and Expenses of Railways MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1930—CONTINUED

Av. mileage during paried. Freight, paried. 1,121 \$1,083,44 s. 1,121 14,550,943
160,068 4,457 17131 2,845,075 66,172 3,007,50 802,080 47,990 910,87
1,627 11,392,219 578,492 12,725,671 4,379 1,951,115 228,045 2,419,134 4,390 33,142,170 3,392,898 39,892,858
573 172,923 31,051 225,618 573 3,029,703 402,648 3,749,601 163 48,697 5,215 59,765 163 799,861 71,695 944,144
150 281,264 3,192 87,375 150 128,425 55,158 1,317,572 364 1,84,645 3,547 96,105 364 1,474,171 67,259 1,632,445
202 1,669,763 1,352 116,669 202 1,660,763 17,780 1,814,371 3,188 2,780,365 498,986 3,623,479 3,188 36,862,328 5,046,263 45,948,859
7,450 6,645,612 717,741 8,160,166 7,451 99,79,357 10,210,315 120,187,689 1,026 908,330 97,652 1,096,541 1,026 13,168,428 1,327,770, 15,428,421
1,159 1,74,476 129,191 1,038,044 1,159 11,845,472 1,657,176 15,072,347 1,13,69 11,518,536 172,943 1,828,257
1,152 870,108 49,264 980,077 1,157 12,494,575 33,346 14,029,114 1,177 429,355 33,42 455,048 1,17 5,971,276 60,763 6,076,447
6 17,779 57 174,539 1,828,931 57 2,554,345 363 2,563,202
.203 1,001,348 140,927 1,295,553 .203 15,662,401 2,095,942 19,317,453 165 629,686 34,164 745,073
6 1,372.591 264 167.918 11,408 184,058 267 2,530,751 158,184 2,778,287
20 26.582 1.743.47 19.305 21.666.75 8.749,129 35.313.587 4.867.697 11.477 307,177,576 111,184,74 4.78.918.350 64,829.677
120 803.301 112.847 120 10.856.069 11.31.847 232 14.669.908 1,780,485 27.341,198 2,893.072
1,698 2,826,018 159,808 3,115,639 1,691 4,27,30,002 1,985,388 4,65,33,185 6,21,22 4,25,463 3,415,245 9,016,791 2,127 62,857,804 42,274,947 118,885,515 16

Revenues and Expenses of Railways MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1930—CONTINUED

Av. mileag operated during		ed.		Maintenance of Way and Eq	nance of Equip.	Operating	g expenses-			Operating	Net from railway	Operating	Net ry.	Net ry. operating
568 7, 2,236 93, 2,239 93,	Freight. \$527,921 7,281,351 6,419,026 93,168,819	Passenger. \$43,702 1,406,959 303,444 3,869,012	(in 100 100 100 100 100 100 100 100 100 10	way and structures. \$74,836 1,330,502 508,851 11,831,477	** duip. ment. **144,266 2,058,229 1,146,344 18,803,900	Traffic. \$11,657 193,722 126,885 1,562,538	1 rans- portation. \$344,108 4,478,946 1,902,859 24,297,149	General. \$27,705 362,851 265,267 3,056,066	Totai. \$601,212 8,464,780 3,958,034 59,675,725	Sec. 5 59.4	sy6,555 1,952,608 3,046,296 40,854,733	\$59,589 1,462,390 2,295,861 30,999,296	income. \$16,580 \$83,267 2,513,503 33,640,859	\$14.598 851,365 3,541,856 44,208,196
932 932 6,789 6,789 6,789 65,1	434,664 6,260,731 4,359,358 65,135,270	19,713 271,282 600,199 7,727,955	485,390 6,901,455 5,534,138 80,642,412	40,718 965,548 455,297 9,884,413	74,684 1,024,622 1,246,523 17,053,769	28,224 345,766 178,802 2,750,178	2,739,982 2,314,847 28,589,123	24,645 314,268 284,106 3,131,839	378,606 5,371,084 4,548,020 62,734,420	78.0 77.8 82.2 77.8	1,530,371 986,118 17,907,992	53,269 903,704 658,787 10,408,818	49,392 743,010 956,566 14,293,213	53,053 1,291,973 1,026,937 21,410,344
441 449 132 129 7	3,512,924 41,332 776,501	110,961 1,555,347 2,086 49,778	312,319 5,555,533 46,135 866,252	1,236,241 20,963 276,001	90,596 1,029,217 3,066 85,995	4,735 82,570 1,516 15,442	203,024 2,533,318 20,601 283,153	12,483 202,512 3,569 44,100	5,072,599 48,547 699,299	136.8 91.3 105.2 80.7	-114,961 482,934 -2,412 166,953	—152,903 48,801 —7,722 113,331	—158,491 —52,045 —18,192 —39,846	299,726 299,726 15,431 —12,900
0,878 25,983,795 0,878 401,514,573 404 10,487,667	83,795 14,573 82,224 87,667	8,413,208 115,372,527 1,957,979 27,070,147	38,643,615 574,446,955 2,905,045 39,596,434	3,630,046 69,053,618 220,506 4,496,094	8,469,345 111,500,108 437,986 5,257,354	799,138 10,241,797 14,064 260,137	16,427,209 212,369,137 1,216,651 15,302,345	1,625,335 20,132,865 61,070 785,363	31,441,500 130,387,823 1,950,261 26,105,925	81.4 74.9 1 67.1 65.9	7,202,115 144,059,132 954,784 13,490,509	5,142,059 107,785,632 774,497 10,025,730	3,688,094 92,341,353 596,812 7,995,447	5,414,945 35,017,826 405,711 8,707,943
17 17 17 192 2,291 1,92 2,255 32,77	10,455 172,428 1,926,279 32,779,262	10,737 158,848 2,183,602	1,620,785 2,244,100 37,216,377	16,728 250,478 419,703 5,369,883	11,176 159,676 490,030 7,602,894	4,731 63,116 73,309 903,465	60,913 726,666 1,012,848 13,783,063	8,149 95,494 108,537 1,358,962	1,295,430 2,100,875 2,030,270	92.1 79.9 93.6 78.0	8,710 325,355 143,225 8,186,107	-16,187 112,598 -24,443 6,232,583	28,384 424,622 —125,238 4,541,164	33,140 499,145 —129,167 9,273,417
102 93,187 102 1,113,497 92 1,73,790 92 3,423,494	3,187	2,936 41,057 2,688 34,645	96,657 1,176,421 203,843 3,787,880	12,929 156,212 25,610 342,833	25,428 267,175 63,300 878,514	1,426 19,660 16,791 227,383	27,030 346,836 51,980 723,981	6,745 90,006 23,006 259,633	73,558 879,889 189,079 2,547,663	76.1 74.8 92.8 67.3	23,099 296,532 14,764 1,240,217	22,549 284,471 39,705 952,047	21,984 305,737 74,740 1,555,311	28,224 356,865 94,105 2,276,784
198 1,517,210 249 40,602 249 630,661	,632 ,602 ,661	9,551 4,692 64,112.	1,569,868 51,842 768,345	14,852 335,840 28,511 310,310	43,618 332,025 8,123 88,115	1,487 20,396 974 10,680	41,022 533,804 22,359 305,183	2,335 30,001	1,304,882 62,216 741,562	91.1 83.1 120.0 96.5	10,552 264,986 10,374 26,783	233,785 —16,040 —30,490	5,930 153,536 —18,314 —62,076	-239,509 12,246 -35,038 -135,471
1,449 5,927,352 1,458 75,176,681 163 106,219 163 1,301,733	,352 ,681 ,219 ,733	486,028 5,950,185 51,678 1,515,895	6,891,359 86,922,614 171,906 3,046,203	916,196 13,253,104 43,169 802,570	1,608,670 21,111,063 24,493 267,499	94,070 1,141,384 3,510 47,449	2,789,583 33,674,255 133,526 2,003,414	239,138 2,697,663 8,606 63,141	5,672,534 72,160,861 213,855 3,185,960	82.3 83.0 124.4 104.6	1,218,825 14,761,753 41,949 —139,757	1,393,940 12,464,082 —82,360 —633,684	1,391,612 12,644,507 —90,836 —845,601	1,368,073 17,196,521 —66,752 —130,242
117 390,354 117 5,173,679 413 207,095 413 3,132,730	354 679 095 730	258,963 3,161,889 59,858 884,611	881,429 10,343,439 373,153 5,286,186	58,848 1,346,879 58,538 952,734	1,995,634 82,086 1,045,559	11,118 125,410 10,707 136,185	300,168 3,699,221 169,067 2,132,326	34,119 460,711 16,133 200,951	566,520 7,876,347 335,759 4,484,491	64.3 76.1 90.0 84.8	314,909 2,467,092 37,394 801,695	246,578 1,920,384 17,887 526,952	1,307,836 30,399 606,140	299,365 2,434,944 33,132 997,011
,264 3,555,693 ,268 56,768,979 ,233 46,714 ,233 671,064	693 979 714 064	605,506 8,169,977 3,669 50,432	4,654,769 70,956,462 58,225 815,446	568,056 8,903,794 24,242 260,096	493,498 12,387,523 11,462 162,923	1,529,003 2,654 35,384	1,861,324 24,661,296 34,936 456,746	2,676,106 3,376 48,606	3,276,720 50,125,350 76,664 956,703	70.4 70.6 131.7 117.3	1,378,049 20,831,112 18,439 -141,257	1,136,153 16,616,477 —22,104 —194,190	1,123,012 16,702,186 —29,700 —294,654	1,204,555 $20,740,161$ $-31,101$ $-181,085$
262 116,235 208 1,697,283 913 1,254,335 843 19,406,275	2883	7,085 109,084 59,561 865,141	1,893,420 1,431,922 21,881,362	26,779 317,326 192,241 3,351,655	12,980 266.829 243,919 3,426,364	6,524 75,345 114,580 1,318,815	53,606 699,668 607,272 7,693,938	8,847 176,510 83,869 1,103,783	1,531,117 1,184,092 16,944,380	79.7 80.9 82.7 77.4	26,205 362,303 247,830 4,936,982	18,869 309,898 168,464 3,862,387	-11,735 -41,734 59,472 2,219,328	4,388 83,241 121,669 3,528,363
155 39	39,233	13,479	1,017,784	12,741	16,435	3,402	289,957	6,334	60,642	106.1 80.9	3,467	9,074	6,633	9,494
6,731 6,847,849 6,731 91,799,046 314 428,452 314 6,191,961	7,849 9,046 3,452 1,961	1,384,230 17,129,081 86,474 1,155,861	9,092,116 118,868,608 565,832 7,934,231	981,201 17,089,087 Cr. 72,756 1,274,113	1,612,862 22,283,262 27,358 1,707,330	2,708,341 7,896 219,987	3,253,207 41,880,049 190,767 2,599,654	362,905 4,321,299 22,720 285,082	6,426,428 89,162,916 181,294 6,158,724	70.7 75.0 32.0 77.6	2,665,688 29,705,692 384,538 1,775,507	2,114,740 21,310,353 309,223 1,147,697	2,007,984 19,708,163 318,409 1,327,268	2,073,072 30,030,977 207,507 2,468,709
338 1,04 338 14,96 397 2,49	1,045,814 14,960,439 161,657 2,491,935	2,062,915 61,525 781,733	1,301,579 18,041,950 253,551 3,563,710	2,742,279 18,361 668,628	319,262 4,098,228 61,529 786,197	15,736 456,257 1,830 24,823	380,845 5,345,747 113,267 1,334,530	53,570 637,473 292 31,361	792,269 13,384,156 199,157 2,903,705	60.9 74.2 78.5 81.5	509,310 4,657,794 54,394 660,005	452,752 3,613,939 28,841 376,134	3,620,613 35,145 373,567	405,289 3,995,695 26,717 427,624
204 276, 204 3,438,	8,528	43,411 566,178	349,132	27,019 659,526	850,534	124,386	114,875	13,432	3,248,594	75.5	1,053,763	99,828	78,742	57,027 881,245

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In the last 2 years

519 LOCOMOTIVES

have incorporated, wholly or in part, the

LIMA A-1 Principles

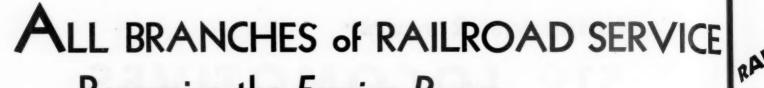
- In the last two years, over 31% of all locomotives ordered followed wholly or in part the principles first developed in the A-1, the pioneer Super-Power Locomotive built by Lima.
- What this has meant in operating economies is shown by one road where 35 Super-Power Locomotives are in service on one division.
- These locomotives replaced a greater number of Mikado and Santa Fe types, none of which was over 10 years old and most of which were only 5 years old.
- A study of operating data on that division, covering a period of several months showed that the Super-Power Locomotives produced 1000 Gross Ton Miles for a cost of 33.25c as compared with a cost of 50.45c for the older locomotives. This is a saving of 34%.



LIMA LOCOMOTIVE WORKS

INCORPORATED

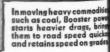
LIMA - - - - - OHIO

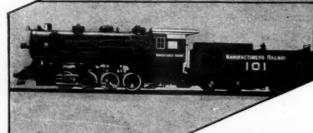


OVER 4000 NOW IN USE ON EIGHTY-TWO WELL KNOWN

In the warm climate and hills and valleys of Mexico, the railroads recognize the value of Booster power.





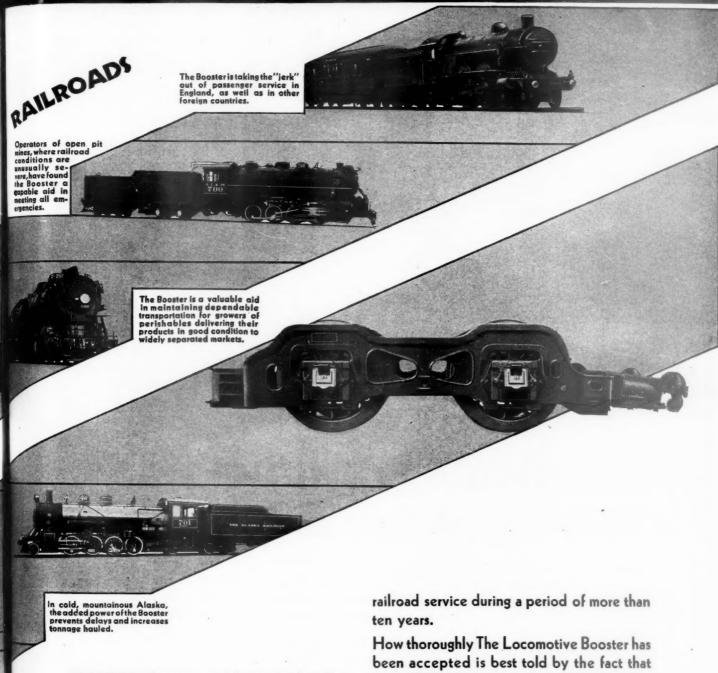


For switching, hump and similar service, Booster-equipped engines speed up work and increase yard capacity.

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W

drags,



HEN the two- and four-wheel trailing truck removed old limits of design and made possible the use of larger boilers, it was The Locomotive Booster which restored the balance that greater boile: power would otherwise have disturbed.

The Booster today has become a fundamental element in locomotive design. Its earning capacity has been established in all branches of

How thoroughly The Locomotive Booster has been accepted is best told by the fact that over 4000 are now in use on 82 well known railroads. Throughout North America . . . in Australia, Africa, England, South America . . . in fact, all over the world, the value of the Booster is recognized.

Because it soon pays for itself, the Booster should be included on every modern locomotive. It also brings the old ones into new usefulness and profitable operation.

FRANKLIN RAILWAY SUPPLY CO., INC.
NEW YORK CHICAGO SAN FRANCISCO ST. LOUIS MONTREAL

Revenues and Expenses of Railways MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1930—CONTINUED

	Y	v. milea						Operating	g expenses		1		Net			Net ry.
Name of road		during period.	Freight	Operating revenues Passenger. (inc	Total (inc. misc.)	Way and structures.	-Maintenance of Vay and Equip.	Traffic.	Trans-	General.	Total.	Operating ratio.	from railway operation.	Operating income (or loss).	Net ry. operating income.	operating income, 1929.
Northern Alabama Southern Pacific	12 mc	110 110 9,125 9,125	\$67,111 924,891 ,956,140 ,010,278	\$3,166 39,482 2,701,482 34,291,656	\$72,846 996,924 13,016,735 188,837,681	\$11,656 222,658 1,521,498 22,994,238	\$2,944 39,480 2,150,867 31,251,669	\$1,155 23,120 402,672 4,836,463	\$25,129 336,179 4,718,924 62,857,075	\$2,977 36,410 611,524 7,759,816	\$43,861 657,810 9,714,644 132,831,268	60.2 66.0 74.6 70.3	\$28,985 339,114 3,302,091 56,006,413	\$23,469 2,74,021 2,287,602 40,638,257	\$20,289 69,769 1,892,163 35,139,394	\$30,303 213,269 2,862,392 48,658,978
So. Pacific Stea Texas & New	Steamship LinesDec.	4,700	397,361 6,712,090 3,411,532 48,858,741	23,365 595,081 601,998 8,231,023	459,109 7,815,536 4,466,506 62,104,912	17,795 231,550 714,041 9,529,262	1,766,189 794,361 11.395,377	21,586 257,367 150,844 2,066,864	395,818 5,569,523 1,461,402 20,361,694	31,863 455,476 240,021 3,061,358	8,280,105 3,384,662 46,533,489	126.3 105.9 75.8 74.9	-120,613 464,569 1,081,844 15,571,423	-127,020 -485,924 814,306 11,637,206	-127,152 -465,724 581,089 8,425,476	254,351 471,247 475,136 11,696,691
Spokane, Portland Tennessee Central	d & SeattleDec.	20000	388,787 6,302,132 197,666 2,782,058	58,609 860,445 8,430 122,134	493,523 7,836,349 218,215 3,064,838	1,261,988 30,345 546,294	94,426 1,170,786 26,987 468,326	12,050 152,957 8,966 110,668	2,560,119 74,552 1,081,941	23,603 280,148 12,161 165,676	5,490,031 152,856 2,366,757	93.8 70.1 77.2	30,742 2,346,318 65,359 698,081	1,318,637 58,935 615,549	72,913 1,131,176 43,373 408,560	37,911 2,236,906 6,414 495,773
Terminal R. R. A	Assn. of St. LouisDec. 12 mos. 12 mos. 12 mos. 12 mos.	55 1,955 1,955	2,189,207	332,893	660,884 10,140,836 2,830,654 37,542,301	85,922 1,526,109 494,728 5,638,322	77,198 965,586 489,471 6,226,466	3,385 37,693 82,075 1,051,306	339,661 4,755,583 947,788 12,005,451	25,091 311,619 117,322 1,505,670	534,313 7,634,499 2,087,326 26,421,279	80.8 75.3 73.7	2,506,337 743,328 11,121,022	62,426 1,225,975 812,354 9,374,923	152,653 2,286,148 707,628 7,235,687	55,057 3,363,026 455,984 8,778,383
Texas Mexican Toledo, Peoria &	Western 12 mos.	162 162 239 239	85,977 977,293 120,548 1,942,902	2,167 37,430 2,661	78,591 1,110,983 124,870 1,992,631	18,005 178,457 17,977 226,225	16,772 188,115 24,012 263,905	3,689 40,948 14,620 172,404	20,591 449,729 47,012 731,013	7,947 96,424 13,717 115,107	65,181 937,752 117,338 1,508,636	82.9 84.4 75.7	13,410 173,231 7,532 483,995	7,197 111,674 8,399 408,916	35,283 35,283 291,345	4,749 106,768 56,742 359,413
Toledo Terminal		28 128 128	22,179	1,949	95,299 • 1,170,671 59,644 976,641	13,688 158,217 14,611 168,101	12,962 185,547 11,617 160,700	583 6,924 1,247 16,799	43,534 540,428 34,074 494,561	8,663 63,574 3,862 47,097	79,430 954,044 65,411 887,258	83.4 81.5 109.7 90.8	15.869 216,627 5,767 89,383	3,323 61,428 -11,776 21,474	29,943 312,156 -12,991 -9,064	28,808 585,023 9,897 32,346
Union R. R. of J	Penna	44			396,205	1,307,620	148,084	1,996	3,793,666	14,499 .	603,040	82.2	206,835	1,380,993	2,118,600	3,954,668
Oregon Short Oregon-Wash.	Line	:::::				: : : : : : : : : : : : : : : : : : : :						::::	: : : :			
Los Angeles 8 St. Joseph & C	& Salt LakeDec. 12 mos. Grand Island12 mos.	::::	:::::			: : : :			: : : :			::::	: : : :			
Utah Virginian	12 mos. 12 mos. 12 mos.	554	1,330,065	19,103	1,436,421	101,033	3,029,327	13,877	280,643	29,992	625,906	43.6	8,514,765	610,485	716,402	786,402
Wabash		2,523 2,523 293 293	3,968,775 52,247,176 322,631 4,696,913	5,359,000 7,989 135,180	4,701,622 61,970,752 340,999 5,025,808	362,374 7,621,983 22,279 475,966	688,565 10,317,394 55,739 940,924	2,272,975 13,581 171,560	24,311,522 167,743 2,095,440	2,470,258 17,192 186,320	3,179,448 47,249,762 275,527 3,865,006	67.6 76.2 80.8 76.9	1,522,174 14,720,990 65,472 1,160,802	1,264,785 12,080,198 53,032 859,075	892,318 7,711.675 26,662 533,514	735,392 13,251,590 78,692 1,042,452
Western Maryland Western Pacific	id	986 895 1,051 1,051	1,320,438 16,599,264 883,970 13,796,557	12,230 171,606 48,443 1,081,138	1,372,810 17,792,694 1,006,038 16,298,581	2,580_968 146,362 2,609,863	263,957 3,303,822 218,849 2,641,269	41,551 521,677 62,771 822,628	375,776 4,656,479 477,101 5,953,314	68,601 562,186 55,823 592,267	932,188 11,638,562 984,510 13,152,839	67.9 65.4 97.9 80.7	440,622 6,154.132 21,528 3,145,742	396,412 5,139.922 46,633 2,032,004	402,992 5,253,239 -30,365 1,910,761	5,819,526 48,191 2,501,516
Wheeling & Lak Wichita Falls &	e ErieDec. Southern	511 511 203 203	809,739 15,090,067 135,115 929,847	16,429 187,001 942 4,991	884,815 16,358,984 138,879 983,013	83,288 1,875,038 7,561 171,630	386,492 4,213,092 8,326 118,261	36,628 444,387 2,432 34,045	320,693 4,899,685 19,058 287,056	51,788 536,306 3,382 50,896	879,848 11,977,414 38,871 647,939	99.4 73.2 27.99 65.91	4,381,570 100,008 335,074	2,929,713 113,297 290,672	3,052,945 108,867 224,661	159,506 5,115,433 84,346 324,139

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an Engine is alling . . out goes the Arch Man

WHEN AN ENGINE fails to steam properly, when combustion is causing trouble, wise old railroaders call the American Arch service man.

His is a ripe experience, enriched by years of observing and correcting combustion troubles. Sometimes the locomotive Arch may need changing because conditions of firing have altered. But more often than not, there is some other obscure trouble that the American Arch Company expert quickly recognizes because in his years of dealing with locomotive combustion he has run across it before.

Such service is only one of the many ways in which American Arch Company insures getting the best possible service from Arch Brick.

Harbison-Walker Refractories Co. Refractory Specialists



American Arch Co.

Locomotive Combustion
... Specialists

NEWS

(Continued from page 339)

meet similar reductions proposed by the The Denver & Rio Grande Western has established a two-cents-amile rate on its line between Grand Junction, Colo., and Montrose.

After the Interstate Commerce Commission failed to suspend the two-cent rate proposed by the Frisco as requested by several other southwestern carriers, various railroads in the territory of the Frisco announced the two-cent rate between competitive points, effective Feb-These include, the Missouri ruary 1. Pacific, the Missouri-Kansas-Texas, the St. Louis Southwestern, the Chicago, Rock Island & Pacific, the Atchison, Topeka & Santa Fe, the Kansas City Southern and the Illinois Central.

Railways Minister in Tribute to Thornton

"In 1936 Canada will celebrate the centenary of the building of the first railroad in this Dominion, and that first railroad, between Laprairie and St. Johns is now part of the Canadian National. What finer ambition could there be, for Sir Henry Thornton to have, and for you officers of the Canadian National to have, than that in five years from now you could put the system in an independent financial position, free of the need of assistance from the Dominion of Canada. That is a goal for all of you to work towards, co-operating with Sir Henry Thornton. I hope that Sir Henry can bring that about. Then he, and you who are co-operating with him so wholeheartedly, will have done a service for the Dominion of Canada which its people can never repay."

In these words Hon. Robert J. Manion, Minister of Railways and Canals in the Dominion government, last week placed an objective before the officers of the Canadian National on the occasion of a dinner tendered in Montreal to the members of the new board of directors and representatives of co-operative committees and organized labor, on the occasion of the first meeting of the new board of directors.

Dr. Manion was responding to a toast to himself proposed by Tom Moore, president of the Canadian Trades and Labor Congress and Labor's representative on the board of directors of the railway. The audience he addressed was composed of officers of the system, representing various departments, gathered in Montreal for the purpose of holding their annual meetings for discussion of traffic, operating and other matters concerning the railroad system; the members of the new board of directors, attending their first meeting since their appointment; members of the co-operative committees representing shop crafts, maintenance of way and bridge and building employees with whom the railway system has joint management agreements, and general chairmen of the various railroad crafts who were meeting in Montreal. These were the guests of Canadian

National officers at the gathering, at which the Minister of Railways and Canals was the guest of honor.

"Sir Henry Thornton," continued Dr. Manion, "has been associated with the Canadian National since 1922. In the last six months I have learned a great deal about the secret of the esprit de corps which he has encouraged on the railways. He has been able to develop this esprit de corps and efficiency because he is not only likable but because he is also efficient. Whether or not we always agree with what he says, we have to respect and to like him. When we consider the beginnings which he had, the lines and the staffs, we must admit that he has brought about a magnificent accomplishment in the Dominion of Canada."

Sir Henry responded to the tribute with praise for Dr. Manion, calling attention to his friendly attitude toward the railway.

B. M. Jewell, president of the Railway Employees Department of the Federation of Labor and representative of shop, track, bridge and building workers, in addressing the gathering, said: "We of the shop, track, bridge and building workers, propose to carry on and give our every effort to the idea of co-operation with Sir Henry Thornton. We stand solidly behind him and all we ask is that he be spared to us for many years to come," Mr. Jewell continued.

"The Canadian National co-operative plan is lifting men and management to a higher plane," said Prof. S. H. Slichter of Harvard University, who is in Canada making a study of co-operative economics. The co-operative movement, Prof. Slichter declared, as a result of his studies in Canada and the United States, tends to encourage men to do things and "counteracts the passive resistance of the individual."

Mexican Unions Support Rail Plan Conditionally

The Confederation of Transportation and Communications, controlling a majority of the railway employee unions in Mexico, following the announcement of President Ortiz Rubio of the government's full support of the plan for the reorganization of the National Railways of Mexico, has issued a statement accepting in general the recommendations affecting the personnel of the Railways, which involve the dismissal of about 13,000 men.

The Confederation during 1930 accepted a readjustment of the forces in the maintenance of way department which has resulted in the employment of 2,500 less men. With the management of the National Railways and the Mexican Department of Labor the unions are now studying the readjustment of working days in the mechanical department, which it is expected will effect an annual saving of about \$2,000,000. The Confederation proposes that the working days per week be reduced from six to five and avers that the company will make greater savings by that method than by dismissal of emplovees.

The Confederation particularly opposes

a reduction of forces among the office workers and is not willing that the management be given complete liberty to employ men without consulting the unions, alleging that such a system would destroy the seniority lists. The unions also charge that the excess of personnel is not as great as claimed by the management, and that the excess is proportionately greater among the supervisory officers of the

Meetings & Conventions

The following list gives names of secretaries, date of next or regular meetings and places of meetings.

AIR BRAKE ASSOCIATION.—T. L. Burton, Room 5605, Grand Central Terminal Building, New York City. Next meeting, May 19-22, 1931, Royal York Hotel, Toronto, Ont. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—Fred W. Venton, Crane Company, 836 So. Michigan Blvd., Chicago. Meets with Air Brake ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—W. R. Curtis, F. T. R., M & O. R. R., Chicago, Ill.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 S. Michigan Ave., Chicago. Next convention, June 16-18, 1931, West Baden Springs Hotel, West Baden, Ind.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J. 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—A. G. Peck, Acting Secretary, 811 W. 35th Street, Kanasa City, Mo. Next meeting June 9-13, 1931, Jefferson Hotel, St. Louis, Mo.

AMERICAN ASSOCIATION OF SUPERINTEDDENTS OF DINING CARS.—F. R. Borger, C. I. & L. R. R., 836 Federal St., Chicago. Next convention, October 20-22, 1931, Baltimore, Md.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York. Next convention, September 26-October 2, 1931. Atlantic City, N. J.

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y. Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York, N. Y. Freight Station Section.—H. J. Forster, 30 Vesey St., New York, N. Y. Freight Agent, Illinois Central Railroad. Chicago.

Medical and Surgical Section.—I. C. Caviston, 30 Vesey St., New York, N. Y. Freight Station Section.—G. C. Caviston, 30 Vesey St., New York, Next convention June 8-9, 1931, Pennsylvania Hotel, New York, N. Y. Protective Section.—J. C. Caviston, 30 Vesey St., New York.

Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York, Next convention June 23-25, 1931, Stevens Hotel, Chicago. Division III.—Traffic.—J. Gottschalk, 143 Liberty St., New York.

Poterctive

Haw-

meeting, June 23-25, 1931, Congress H. Chicago.

Equipment Painting Section.—V. R. H. thorne, 59 East Van Buren St., Chic Division VI.—Purchases and Stores.— W. Farrell, 30 Vesey St., New York, N. Division VII.—Freight Claims.—Lewis cher, 59 East Van Buren St., Chic Division VIII.—Motor Transport.—Ge. M. Campbell, 30 Vesey St., New Y. N. Y. Pil. ewis Pil

N. Y.

Car Service Division.—C. A. Buch, 17th and
H. Sts., N. W., Washington, D. C.

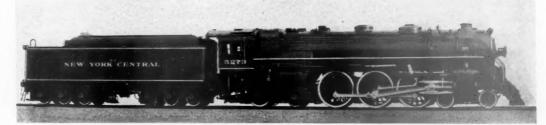
LERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry.,
319 N. Waller Ave., Chicago. Next convention, October 20-22, 1931, Toronto, Ont. Exhibit by Bridge and Building Supply Men's
Association.

Association.

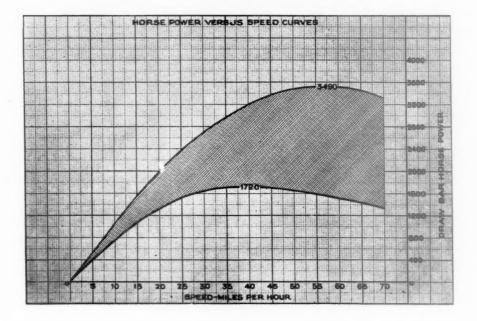
AMERICAN RAILWAY DEVELOPMENT ASSOCIATION

—A. W. Large, Gen. Agri. Agt., C., R. I. &
P. Ry., Chicago, Ill. Annual meeting, June
17-19, 1931, Hotel Benjamin Franklin, Phila
delphia, Pa.

Built



Weight on Drivers, 188,500 pounds; Weight of Engine, 351,000 pounds; Cylinders, 25 x 28 inches; Diameter of Drivers, 79 inches; Boiler Pressure, 225 pounds; Maximum Tractive Power with Booster, 53,200 pounds.



Curve shows horse-power versus speed for the modern Hudson Type as compared with the K-3 Pacific, the main passenger engine of six years ago on the New York Central Lines.

The Hudson type has approximately the same weight on drivers. The large increase in horse-power capacity, as represented by the cross-sectional area, indicates the possibilities available in modern power where weights are limited and higher track stresses are not permissible.

American Locomotive Company
30 Church Street New York N.Y.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—
Works in co-operation with the American Railway Association, Division IV.—E. H. Fritch, 59 East Van Buren St., Chrcago. Next meeting, March 10-11, 1931, Palmer House, Chicago. Exhibit by National Railway Appliances Association.

American Railway Magazine Editors Association.—Miss E. Phillips, N. Y., N. H. & H. Magazine, Boston, Mass. Next meeting, June 4, 1931, Philadelphia, Pa.; June 5, 1931, Atlantic City, N. J.

American Railway Tool Foremen's Association.—G. G. Macina, C., M., St. P. & P. R. R., 11462 Calumet Ave., Chicago. Exhibit by Supply Association of the American Railway 1001 Foremen's Association.—F. E. Caswell, Union Twist Drill Co., 11 S. Clinton St., Chicago.

American Society of Mechanical Engineers.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Paul D. Mallay, Johnsmanville Corp., 292 Madison Ave., New York.

Manville Corp., 292 Madison Ave., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—
H. L. Dawson, 1104 Chandler Building, Washington, D. C.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Annual convention, June 17-19, 1931, Royal York Hotel, Toronto, Ont.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.
—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Station, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, Transportation Building, Washington, D. C.

ASSOCIATION OF RAILWAY SUPPLY MEN.—J. F. Gettrust, Ashton Valve Company, 565 Washington Blvd., Chicago. Meets with International Railway General Foremen's Association.

ciation.

Boilermakers' Supply Men's Association.—
Frank C. Hasse, Oxweld R. R. Service
Company, 230 N. Michigan Ave., Chicago.
Meets with Master Boiler Makers' Associ-

Frank C. Hasse, Oxweld R. R. Service Company, 230 N. Michigan Ave., Chicago. Meets with Master Boiler Makers' Association.

Bridge and Building Supply Men's Association.—S. A. Baber, High Grade Manufacturing Co., 10418 St. Clair Ave., Cleveland, Ohio. Meets with American Railway Bridge and Building Association.

Canadan Railway Club.—C. R. Crook, 2276 Wilson Ave., N. D. G., Montreal, Que. Regular meetings, 2nd Monday in each month, except June, July and August, Windsor Hotel, Montreal, Que.

Car Department Officers' Association.—A. S. Sternberg, M. C. B. Belt Ry. of Chicago, 7926 South Morgan Street, Chicago. Exhibit by Supply Men's Association.

Car Foremen's Association of Chicago.—G. K. Oliver, Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

Car Foremen's Association of Los Angeles.—J. W. Krause, Room 299, 610 So. Main St., Los Angeles, Cal. Regular meetings, second Monday of each month, except July, August and September, Room 299, 610 So. Main St., Los Angeles, Cal. Regular meetings, second Monday of each month, except July, August and September, Room 299, 610 So. Main St., Los Angeles, Cal. Regular meetings, second Monday of each month, except July, August and September, Room 299, 610 So. Main St., Louis, Mo.

—F G. Wiegman, 720 N. 23rd St., East St. Louis, Mo.

Central Railway Club of Buffalo, N. Y. Regular meetings, 2nd Thursday each month, except July and August, American Hotel Annex, 6th and Market Sts., St. Louis, Mo.

Central Railway Club of Buffalo, N. Y. Regular meetings, 2nd Thursday each month, except July, August, American Hotel Annex, 6th and Market Sts., St. Louis, Mo.

Central Railway Club.—D. R. Boyd, 453 E. 6th St., Cincinnati, Ohio. Meetings 2nd Tuesday in February, May, September and November.

Cleveland Railway Club.—D. R. Boyd, 453 E. 6th St., Cincinnati, Ohio. Meetings, second Monday each month, except July, August, American Hotel Statler, Buffalo, N. Y.

Cincinnati Railroad Master Blacksmiths' Supply Men's Association.

Int

national Railroad Master Blacksmiths' Supply Men's Association.

International Railroad Master Blacksmiths' Supply Men's Association. — J. H. Jones. Crucible Steel Company of America, 650 Washington Blvd., Chicago. Meets with International Railroad Master Blacksmiths' Association.

International Railroad Master Blacksmiths' Association.

International Railroad Master Blacksmiths' Association.

T. Winkless, Room 700 La Salle Street Station, Chicago. Exhibit by International Railway Supply Men's Association.

International Railroad General Foremen's

International Railway General Foremen's Association.—Wm. Hall, 1061 W. Wabasha St., Winona, Minn.

International Railway Supply Men's Association.—C. M. Huffman, Dearborn Chemical Co., 310 So. Michigan Ave., Chicago, Meets with International Railway Fuel Association.

Master Boiler Makers Association.—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y. Exhibit by Boiler Makers' Supply Men's Association.

with International Railway Fuel Association.

MASTER BOILER MAKERS ASSOCIATION—A. F. Stiglmeier, 29 Parkwood St., Albany, N. Y. Exhibit by Boiler Makers' Supply Men's Association.

MASTER CAR BUILDERS' AND SUPERVISORS' Association.

MASTER CAR BUILDERS' AND SUPERVISORS' Association.

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.—James B. Walker, 270 Madison Ave., New York. Annual convention, 1931, Richmond, Va.

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—Roy. M. Edmonds, 1252 Syndicate Trust Bidg., St. Louis, Mo. Annual convention, May 5-7, 1931, West Baden Springs Hotel, West Baden, Ind.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, 1014 South Michigan Ave., Chicago. Exhibit at A. R. E. A. convention.

NATIONAL SAFETY COUNCIL.—Steam Railroad Section: J. L. Walsh, Supt. Safety, M.-K.—T. R. R., Dallas, Tex. Annual congress. October 12-16, 1931, Hotel Stevens, Chicago.

New England Railroad Club.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2nd Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

New York Railroad Club.—D. I. McKay, 26 Cortlandt St., New York. Regular meetings, 3rd Friday in month, except June, July and August, 29 W. 39th St., New York City.

PACIFIC RAILWAY CLUB.—W.—S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings 2nd Thursday in month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1112 Moodward Building, Washington, D. C.

RAILWAY BUSINESS ASSOCIATION. — Frank W. Noxon, 1112 Shoreham Building, Washington, D. C.

RAILWAY BUSINESS ASSOCIATION. — Frank W. Noxon, 2012 Shoreham Building, Washington, D. C.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—Elwar Durakers with Massociation of Railway Electrical Engineers.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—E. W. Venton, Crane Co., 836 S. Michigan Ave., Chicago. Meets with Traveling Engineers' Association.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—I. D

ING ENGINEERS' ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.
—J. D. Conway. 1841 Oliver Bidg., Pittsburgh, Pa. Meets with Mechanical Division, Purchases and Stores Division and Motor Transport Division, American Railway Association.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A. Division 1.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—
L. W. COX. 1217 Commercial Trust Bldg., Philadelphia, Pa.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION. — T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio. Pittsburgh, Pa. Next convention. September 22-24, 1931. Hotel Stevens, Chicago. Exhibit by Track Supply Association.

St. Louis Railway Club.—B. W. Frauenthal, Drawer 24, M. P. O., St. Louis, Mo. Regular meetings, 2nd Friday in month. except June. July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A. Signal Section.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. T. Miller, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May. July. September and November. Ansley Hotel. Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—R. G. Parks, A. B. & C. Ry., Atlanta, Ga.

SUPPLY MEN'S ASSOCIATION.—E. H. Hancock, Treasurer, Louisville Varnish Co., Louisville, Ky. Meets with A. R. A. Div, V. Equipment Painting Section.

SUPPLY MEN'S ASSOCIATION.—Bradley S. Johnson, W. H. Miner, Inc., 667 The Rookery Building, Chicago, Meets with Car Department Officers' Association.

TRACK SUPPLY ASSOCIATION.—Bradley S. Johnson, W. H. Miner, Inc., 667 The Rookery Building, Chicago, Meets with Car Department Officers' Association.

TRACK SUPPLY ASSOCIATION.—C. C. Rvan, Oxweld Railroad Service Co., Carbon & Carbide Building, Chicago, Meets with Car Department Officers' Association.

TRACK Supply Association.

TRACK Cleveland, O. Next convention March 25-28, 1931.

and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland.

O. Next convention March 25-28, 1931, Hotel Sherman, Chicago. Exhibit by Railway Equipment Manufacturers' Association.

Western Railway Clue.—W. J. Dickinson, 343
So. Dearhorn St., Chicago. Regular meetings 3rd Monday each month, except June. July and August.

Equipment and **Supplies**

FREIGHT CARS

THE INLAND STEEL COMPANY has ordered 15 ingot cars from the Lorain Steel Company.

THE RAILWAY REFRIGER TOR CAR CORPO-RATION is inquiring for 1.10 refrigerator cars of 40 tons' capacity.

THE BOARD OF TRANSPORTATION, New York City, reported in the Railway Age of December 20 as contemplating the issuance of inquiries for miscellaneous service cars, is now inquiring for 16 cars as follows:

6 trailer flat cars air dump cars motor flat cars trailer supply car emergency pump car

PASSENGER CARS

THE ATCHISON, TOPEKA & SANTA FE has ordered 14 gas-electric rail motor cars, dividing the order as follows: three mail and smoking coaches, one mail, baggage and smoking coach, all to be 80 ft. long, and eight baggage and mail cars, 75 ft. long from the Pullman Car & Manufacturing Corporation; two mail and baggage cars, 80 ft. long, from the J. G. Brill company. Those ordered from the Pullman Car & Manufacturing Corporation will be equipped with 400hp. power units supplied by the Electro-Motive Company, and those ordered from the J. G. Brill Company with 550-hp. power units supplied by the latter company. Inquiry for this equipment was reported in the Railway Age of Novem-

MACHINERY & TOOLS

THE ATCHISON, TOPEKA & SANTA FE is inquiring for 14 machine tools.

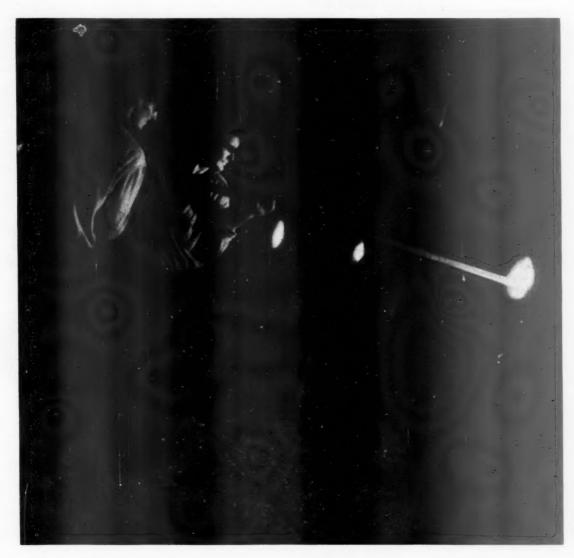
IRON & STEEL

THE CHICAGO & NORTH WESTERN has ordered 300 tons of structural steel for bridge work from the Worden Allen Company and the Milwaukee Bridge Company.

THE WESTERN PACIFIC has ordered 760 tons of structural steel for bridge work from the Virginia Bridge and Iron Company and the Bethlehem Steel Company.

THE CANADIAN PACIFIC has given an order to the Algoma Steel Corporation for 30,000 tons of 130-lb. R. E. H. F. (head free) rail. This rail is to be shipped to western lines for laying 150 miles of the company's Mountain subdivision.

THE ILLINOIS CENTRAL reports that 175 new industries were established in towns along its lines in 1930.



The Alloy Crews * * * Guardians of Quality

The alloy crews of Illinois Steel Company have a free hand in selecting the pick of the furnaces. Special mills and the best of everything are available for their use. Sure in their technique, exacting in their demands, the alloy crews are the best assurance of quality in Illinois Alloy Steels.

Illinois Steel Company

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

208 South La Salle Street, Chicago, III.



ILLINOIS alloySTEEL

Supply Trade

The Frost Railway Supply Company has moved its offices from the Penobscot building to the Union Guardian building, Detroit, Mich.

The West Allis Fuel & Supply Company, West Allis, Wis., has been appointed distributors in Milwaukee and Waukesha counties, of the products of the General Refractories Company, Philadelphia, Pa.

F. P. Brent, comptroller of the American Locomotive Company, has been appointed comptroller also of the McIntosh & Seymour Corporation. Mr. Brent will have his headquarters as formerly at New York.

L. R. Conolly, sales engineer, of the MacLean-Fogg Lock Nut Company, Chicago, has been granted leave of absence to serve as representative of the department of Exhibits, Chicago World's Fair Centennial Celebration in 1933.

R. H. Webb-Peploe, district manager of the White Company at New York, has been appointed regional vice-president, in charge of the Metropolitan region, with headquarters at Long Island City, N. Y.

Howard G. Gass, vice-president of the St. Louis Car Company, has been elected a director to succeed George W. Scruggs, who has resigned as secretary and treasurer. Louis F. Gempp, assistant treasurer, has been promoted to treasurer and Edward J. Plowden, assistant secretary, has been promoted to secretary. John F. Tringle has been appointed assistant treasurer.

Jesse V. Honeycutt, who has been sales agent in New York City for frogs, switches and railroad material, has been appointed manager of sales of frogs and switches, of the Bethlehem Steel Company, with office at Bethlehem, Pa. He succeeds to the place of Neil E. Salsich, who has resigned to become vice-president in charge of sales of the Jeffrey Manufacturing Company, Columbus, Ohio.

H. Hengeveld, who retired on January 1, as master painter of the Atlantic Coast Line, has become a member of the sales force of The Lowe Brothers Company, Dayton Ohio. Mr. Hengeveld, whose age is 70 years, was for 42 years in the service of the Atlantic Coast Line. For a number of years he has been a member of the committee of direction, Equipment Painting Section, American Railway Association.

Claus Greve, president of the Cleveland Pneumatic Tool Company, Cleveland, Ohio, has been elected chairman of the board; L. W. Greve, treasurer, has been elected president and John De-Mooy has been elected treasurer. L. W. Greve is also president of its associated companies, the Champion Machine & Forging Company and the Cleveland

Rock Drill Company. H. W. Foster, vice-president, H. S. Covey, secretary, and Arthur Scott, superintendent of the Cleveland Pneumatic Tool Company, were re-elected and A. F. Barner was appointed assistant secretary.

R. P. Allison, who has been appointed manager of the Schenectady (N. Y.) plant of the American Locomotive Company, entered the service of that company as an apprentice in 1896. He subsequently served as journeyman, assistant foreman and foreman until 1904 when he was appointed machine shop foreman with the Montreal Locomotive Works, Montreal, Canada, retaining that position until 1908 when he was appointed plant engineer. In 1916, Mr. Allison went to the Poole Engineering Company, Baltimore, Md., as works manager serving in that position until 1919 and then was appointed works manager for Hale & Kilbourne, Philadelphia, Pa. Two years later Mr. Allison was appointed general superintendent of the Richmond plant of the American Locomotive Company and in 1927 was promoted to manager of the same plant. In April, 1930, he was transferred as manager to the Dunkirk (N. Y.) plant of the American Locomotive Company which position he held at the time of his recent promotion to manager of the Schenectady plant.

John S. Stevenson who has been appointed manager of the Dunkirk (N. Y.) plant of the American Locomotive Company began work in 1891 as an apprentice in the shops of the Peninsular Car Company. He first served for five years in the templet shops and then for four years learning car building; he was then transferred to the engineering department of a new company formed by the consolidation of the Peninsular Car Company with the Michigan Car Company. In 1899 this company became a part of the American Car & Foundry Company and in 1901 he was transferred to the St. Louis mechanical department. He returned in 1902 to the Peninsular plant in the shop engineering department which position he held until the latter part of the same year when he went with the Russell Wheel & Foundry Company in charge of its car work. Mr. Stevenson returned to the service of the American Car & Foundry Company in 1912 and was in entire charge of the shop engineering of the Detroit plant until the close of the war when he became general superintendent of the same plant. In 1926, he was transferred to the New York office and since that time has been in charge of the general development work of the entire company until his recent appointment as manager of the Dunkirk plant of the American Locomotive Company.

R. B. McColl, who has been elected president and a director of the McIntosh & Seymour Corporation, Auburn, N. Y., was born in 1882 at Kilmarnock, Scotland, where he attended the Kilmarnock Academy and the Science and Art College. After serving a special apprenticeship and working in various departments on the Glasgow & Southwestern he was

employed by Robert Stephenson & Sons, locomotive builders, Darlington, England, as a draftsman. In 1905 he went to the Montreal Locomotive Works, Montreal, Canada, and served in several departments until he became assistant superintendent, then superintendent of works and finally works manager. In 1917 he was appointed manager of the munition department of the Eddystone Munition Company, where he served until after the armistice. Returning to England he was appointed general manager of the Armstrong Witworth Company's locomotive department in charge of the building and equipping of the



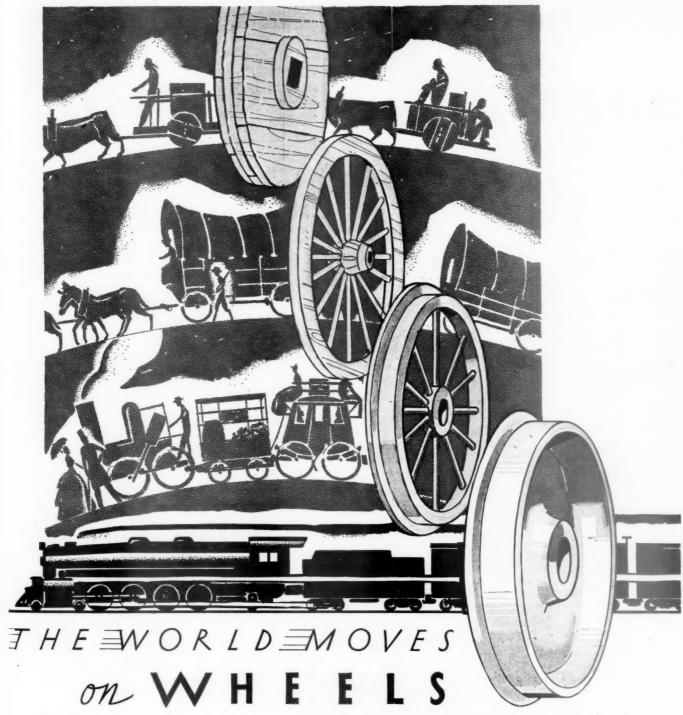
R. B. McColl

locomotive works and of the sales, engineering and manufacturing of loco-Later, in addition, he was motives. made general manager of the pneumatic tool department, gas and oil engine department and director of the Works board of all the company's plants which included shipbuilding and the construction of Diesel oil engines for marine work, etc. In January, 1922, Mr. McColl became attached to the New York office of the American Locomotive Company and the following June was appointed assistant manager of the Schenectady plant. In January, 1925, he was appointed manager of the plant which position he held at the time of his recent election as president of the McIntosh & Seymour Corporation.

Lima Locomotive Works, Inc., Annual Report

The Lima Locomotive Works, Inc., for the year ending December 31, 1930, reported a net income of \$1,382,318, after allowance for depreciation and federal taxes, according to the annual report issued on February 2. The foregoing compares with a 1929 net income of \$501,506, and a 1928 net loss of \$111,606.

From the 1930 net income a dividend of \$2 per share on the outstanding common stock has been declared, payable February 17. Joel S. Coffin, chairman, in commenting on this disbursement says "This is a special dividend and is not to be understood as a resumption of regular payments. Unless its business should materially increase in the near future, the company will necessarily



From the time man discovered that a rounded object rolls with comparative ease and devised the first crude cart, he has ever been on the move. His means of conveyance have undergone vast changes. The slow joggle of the oxcart has given place to the swift flight of the express train, but never has the wheel been supplanted as the basic factor of transportation. Instead, it has become more vitally important than ever. The speed and weight of modern transportation throw a tremendous responsibility

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on wheels. Significant then is the fact that Carnegie Wrought Steel Wheels are considered the standard of excellence in today's exacting service. To serve even more efficiently, we are now prepared to furnish Rim-Toughened Wrought Steel Wheels. The process of heat treatment to which these wheels are subjected insures additional service out of all proportion to the small increase in cost. Our wheel engineers will be glad to discuss this matter with you further.

WROUGHT STEEL

Product of Carnegie Steel Company, Pittsburgh, Pa. Subsidiary of United States Steel Corporation



conserve its working capital and surplus in order to be in position to care for its needs when additional orders are placed. The longer purchases are delayed, the greater will be the ultimate demand. Future dividend payments therefore will depend entirely upon the amount of business booked."

At the close of the year, the company had a surplus amounting to \$4,262,579 as compared with a surplus of \$2,882,558, on December 31, 1929.

The balance sheet as of December 31, 1930, lists current assets at \$9,406,408 and current liabilities at \$781,715, indicating an excess of \$8,624,693 in current assets over current liabilities. The report calls attention to the fact that the current assets at the close of last year included \$6,196,275 in cash and United States government securities as against a comparable figure of \$2,944,903 for the previous year.

"The greater part of the business done during the year was booked the latter part of 1929 and early in 1930, after which there was a marked reduction in the amount of orders received," the report states. "The near-term prospects," it continues, "are still indefinite, but toward the close of the year several inquiries for equipment were made and a reasonable amount of business placed. While the volume of new business is not great, conditions should gradually improve in this respect during the current year."

General Railway Signal Company Annual Report

Net income of \$2,432,350, after allowances for depreciation and taxes, was reported by the General Railway Signal Company for the year ending December 31, 1930, as compared with net income of \$3,118,345 for the previous year. The 1930 profit was equivalent, after the payment of preferred dividends, to \$7.07 per share on the company's common stock outstanding; in 1929 the earnings were equivalent to \$8.25 on each of the outstanding common shares.

The balance sheet reveals that current assets at the close of last year amounted to \$10,258,376, while current liabilities were listed at \$2,483,534. The report states that the volume of orders booked in 1930 was 72 per cent of that in 1929, while the volume of unfilled orders on hand January 1, 1931, amounted to 80 per cent of those on hand at the opening "Installation of of the previous year. the major part of all the plants ordered in the last half of 1930 will be started shortly and all will be completed this year," the report states. "The constantly growing need for increased efficiency and economy of railway operation is chiefly responsible for the enlarging demand for your company's products. it adds.

The report further reveals that during the year the company purchased 12,-850 shares of its own common stock at an average cost of \$76.27 per share making its total treasury holding of these shares 33,400 at an average cost of \$78.80 per share. It is pointed out that the re-

sultant saving in dividend payments on the basis of \$5 per share equals 6.35 per cent on the stock purchase price. The profit and loss and surplus accounts for the year ending December 31, 1930 are as follows:

Gross Operating Income, before Depreciation		\$4,528,326 1,288,179
Interest, Dividends and Miscellaneous Income		\$3,240,647 161,113
		\$3,401,761
From which deduct: Depreciation and Amortization Interest Charges on Temporary Loans Provision for State and Federal Taxes	\$460,665 62,246 446,500	969,411
Net Income for Year Dividends on Preferred Stock—6% Less Dividends on Preferred Stock in Treasury	\$170,004 28,146	\$2,432,350
		141,858
Balance available for Common Stock Dividends (Equivalent to \$7.07 per Share on Common Stock Outstanding less in treasury, 324,100 Shares) Dividends on Common Stock—\$5.00 per Share Less Dividends on Common Stock in Treasury		\$2,290,492
		1,657,063
Net Surplus for Year Earned Surplus as at December 31, 1929 Add Adjustments applicable to Prior Years	\$4,661,963	\$633,429
		4,662,799
Earned Surplus as at December 31, 1930 Paid-in Surplus		\$5,296,229 3,665,131
Total Surplus as at December 31, 1930		\$8,961,360

OBITUARY

A cable message of January 30 announces the death of Ernest Copeland Irving, chief engineer of the British Power Railway Supply Company, London. Mr. Irving had been a member of the Signal Section, American Railway Association, and of the Institute of Railway Signal Engineers (England).

Orton Lee Prime, president of the Prime Manufacturing Company, Milwaukee, Wis., who died at Rochester, Minn., on January 14, was born on April 3, 1874, at Fall River, Wis. Mr. Prime attended St. John's Military Academy at Delafield, Wis., and Michigan University, at Ann Arbor, Mich. He served in the Spanish American War as a corporal in the second regiment Troop B, United States Cavalry. Early in 1900 Mr. Prime was president of the Prime Steel Company, Milwaukee, and in 1914 when the



Orton Lee Prime

Prime Manufacturing Company was formed Mr. Prime continued as president of the new company.

Henry Giessel, president of the Henry Giessel Company, Chicago, died in Park Ridge, Ill., on January 27. He was born on July 31, 1855 in Germany and came to the United States at the age of 12. After completing his education and serving his apprenticeship in the sheet metal trade, he began the manufacture of vari-

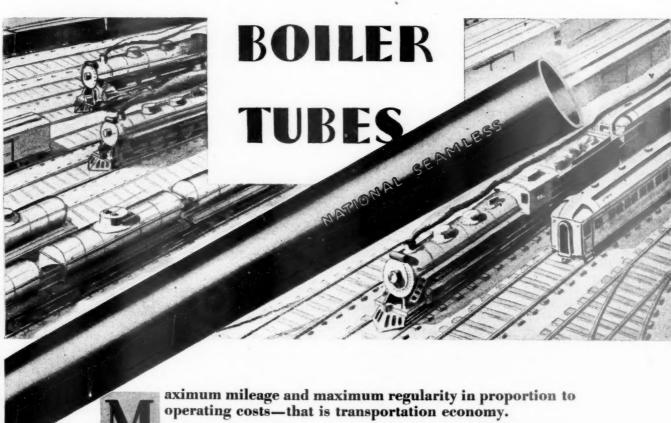


Henry Giessel

ous metal specialties, including acetylene gas machines. During 1892 he began the manufacture of water filters for use on railroad dining cars and in 1914 formed the Henry Giessel Company to manufacture sanitary drinking water coolers, filters and auxiliary appliances for use on all types of railroad passenger equipment. He remained president of this company from the time of its inception until his death.

It seems like a reversion to the Dark Ages to travel long distances by road when the essentials of travel—speed, safety, punctuality, comfort, and cuisine—can only be found on a well-managed rail-way.—Bazil Bazley in the "Sunday Times" (London).

ROLL UP THE MILEAGE with GOOD



Top-notch, unvarying performance of the engine is even more important than economy of boiler maintenance. The two are likely to go together, of course, and NATIONAL-SHELBY Seamless Boiler Tubes go very far to assure both. For the same qualities that make them lasting, make them also highly immune to costly disablements, interruptions, and delays.

Ductility, toughness, and strength are worked into these tubes by employment of the expertness, the facilities, and the organization of the largest manufacturer of tubular products in the world. They resist pitting and fatigue, hold tight in the flue sheet, and give lasting, efficient service. Ask for Bulletin 12, describing NATIONAL-SHELBY—

America's Standard Boiler Tubes

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

Subsidiary of United States Steel Corporation



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Financial

ATCHISON, TOPEKA & SANTA FE.—Bonds.

—The Interstate Commerce Commission has authorized the Clinton & Oklahoma Western to issue a first and refunding mortgage 6 per cent, series B, bond for \$1,000,000 to be delivered to the Santa Fe in satisfaction of indebtedness. The Cane Belt has been authorized to issue a similar bond for \$1,750,000, likewise to be delivered to the Santa Fe in satisfaction of indebtedness. The Osage County & Santa Fe has been authorized to issue a similar bond for \$1,800,000 to be delivered to the Santa Fe.

CHICAGO GREAT WESTERN.—Notes.— The Interstate Commerce Commission has authorized this company to issue \$3,681,603 of 5 per cent promissory notes, payable to the Pullman Car & Manufacturing Corporation in connection with the acquisition of cars.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire by purchase an undivided half interest in the line of the Longview, Portland & Northern from Longview to Chehalis, Wash., 24.6 miles, and to operate over the line of the Northern Pacific, or to build its own line, from Chehalis to Vader Junction, about 20 miles.

CHICAGO, ROCK ISLAND & PACIFIC.— Dividend Postponed.—Directors of this company have postponed action until March 4 on the quarterly dividend on its common stock. The stock has been paying \$7 annually and last year's earnings averaged over \$5.50 per share.

ERIE.—Final Valuation.—The Interstate Commerce Commission has issued a final valuation report as of 1918 finding the final value for rate-making purposes of all properties used by the Erie Railroad for common-carrier purposes to be \$284,-279,317, while the value of the Chicago & Erie was placed at \$25,495,764, that of the New York, Susquehanna & Western at \$14,979,331, and that of the New Jersey & New York at \$1,619,500. The total capitalization as of valuation date was \$391,-702,584, and the book cost of road and equipment, including land, was \$283,005,-647.

Kansas & Oklahoma.—Sale at Auction.—This railroad, extending between State Line, Kan., near Liberal, and Woods, 19 miles, has been purchased at public auction by C. M. Light of Liberal. The purchase price was \$34,000 and involved the assumption of \$12,000 of delinquent taxes. The company has been in receivership since April 18, 1923.

MICHIGAN CENTRAL.—Bonds.— This company has applied to the Interstate Commerce Commission for authority to issue \$4,000,000 of refunding and improvement mortgage $4\frac{1}{2}$ per cent bonds, in respect of the retirement of a like amount of 5 per cent bonds secured by mortgage

on properties formerly owned by the Detroit & Bay City, maturing March 1. The New York Central also asked authority to assume obligation and liability.

Missouri Pacific.—Bonds.—This company has applied to the Interstate Commerce Commission for authority for the issuance and sale of \$61,200,000 of first and refunding mortgage 5 per cent bonds to a syndicate of bankers at 95 and interest. The proceeds are to be used in part to retire an issue of \$42,874,000 of bonds of the St. Louis, Iron Mountain & Southern.

PHILADELPHIA & READING.—Final Valuation.—The Interstate Commerce Commission has issued a final valuation report as of 1917 finding the final value for ratemaking purposes of the properties used by the P. & R. system for common-carrier purposes to be \$233,755,958. That of the property owned and used was placed at \$75,711,237, while that of the lines used but not owned was placed at \$134,652,111. The book investment in road and equipment, including land, was \$113,654,185, and the outstanding capitalization was \$90,096,504.

PITTSBURGH & WEST VIRGINIA.—Notes.
—The Interstate Commerce Commission has authorized this company to issue \$2,-200,000 of 4½ per cent short term notes in renewal of a maturity of equal amount.

St. Louis-San Francisco.—Dividend Postponed.—Directors of this company have postponed until March 4 action on the usual \$2 quarterly dividend. Earnings in 1930 were slightly greater than \$4 a share.

WEST RIVER .- Road Reopened .- Operation of this road has been resumed, following restoration of the track which was washed away and otherwise damaged in the Vermont flood of November, 1927. It is stated that the restoration of the track has been financed by a loan of \$200,-000 floated by the State legislature. The road extends from Brattleboro, Vt., on the Central Vermont, northwestward to South Londonderry, Vt., 35½ miles. was formerly operated by the New London Northern (controlled by the Central Vermont) but these companies abondoned operation because of poor business, and in April, 1930, the Interstate Commerce Commission authorized the West River to operate the road.

Dividends Declared

Bangor & Aroostook.—Common, \$.88, quarterly; Preferred, \$1.75, quarterly, both payable April 1 to holders of record February 28.

Delaware & Hudson.—\$2.25, quarterly, payable March 20 to holders of record February 26.

Maryland & Pennsylvania.—\$2.00, quarterly, payable April 10 to holders of record March 31.

New York, Chicago & St. Louis.—Common and Preferred, \$1.50, quarterly, both payable April 1 to holders of record February 10.

Pennsylvania.—\$1.00, quarterly, payable February 28 to holders of record February 2.

Average Prices of Stocks and of Bonds

Average price of 20 representative railway bonds. Peb. 3 Rest Week year 93.33 94.30 132.32 Perage price of 20 representative railway bonds. 93.49 94.52 92.44

Construction

ATCHISON, TOPEKA & SANTA FE.—This company plans to construct a concrete, brick and steel passenger and freight station at Garnett, Kan.

Bureau of Reclamation.—A contract has been awarded by this bureau of the Department of the Interior to the Lewis Construction Co., Los Angeles, Cal., for the construction of a railroad from a junction with the Los Angeles & Salt Lake at Summit, Nev., near Boulder City. to the site of the Hoover dam on the Colorado river, 10 miles. The bid of \$455,510 was less than the estimates of the government engineers. The contract provides that the work is to be completed during the latter part of August.

Canadian National.—A contract for the foundations for the new station of this company at Saint John, N. B., has been awarded to B. Mooney & Sons, Ltd., of Saint John.

CHICAGO, ROCK ISLAND & PACIFIC.—A contract has been awarded to John Marsch, Inc., Chicago, for the construction of a new double-track main line around the freight yard at Trenton, Mo., involving a total expenditure of about \$200,000. The project includes the excavation of about 650,000 cu. yd. of earth and 1,000 cu. yd. of rock.

ERIE.—The Public Service Commission of New York has approved an estimate of \$128,700 for the elimination of the Starin avenue crossing of this road in Buffalo, N. Y.

NEW YORK CENTRAL - NEW YORK, CHICAGO & St. LOUIS-PENNSYLVANIA.—The New York Public Service Commission has approved revised plans and a revised estimate of costs in the amount of \$50,452 in connection with the elimination of the Athol Springs Road crossing in Hamburg, N. Y. This estimate covers the costs of the substructure and superstructure necessary to carry the tracks of these roads over the county highway.

Pennsylvania.—A contract has been awarded to the M. A. Long Company, Baltimore, Md., for construction work on this company's new produce terminal building at Mt. Vernon yard, Baltimore. The amount involved is approximately \$230,000. The new terminal was described in detail in the Railway Age of November 1, 1930, page 965.

Texas & Pacific.—This railroad and the City of Marshall (Tex.) plan the construction of a grade separation structure at North Grove street, Marshall, involving an expenditure of about \$30,000.

TORONTO, HAMILTON & BUFFALO.—This company is taking bids for grade separation and subway work in connection with its track elevation and station improvement program at Hamilton, Ont., described in the Railway Age of October 11, 1930, page 780.

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- These are the ideal qualities for a boiler tube. Every one of them is found in the boiler tube of Toncan Iron.
- Here is an iron boiler tube without a weld. Seamless! With all that this means.
- Moreover cold-working does not affect its corrosion resistance. It is easily expanded, rolled and welded.
- Once in place it lasts longer due to the superior corrosion-resistance of the alloy of refined iron, copper and molybdenum that constitutes Toncan Iron.
- Use this modern boiler tube and keep maintenance at a minimum.

Central Alloy Steel Division

REPUBLIC STEEL

Massillon, Ohio



Railway Officers

FINANCIAL, LEGAL AND ACCOUNTING

Birdsall A. McAllaster, land commissioner of the Southern Pacific with headquarters at San Francisco, Cal., has retired under the pension rules of the company after more than 53 years of railway service. Mr. McAllaster was born at Morristown, N. Y., on October 10, 1860, and obtained his academic education at the University of Kansas. He entered railway service at the age of 16 years as a warehouseman on the Kansas Pacific (now part of the Union Pacific) at Salina, Kan. From 1879 to 1890, he was a clerk in the local freight office of the Union Pacific at Kansas City, Mo., and in the land department of that road, and chief clerk of the latter department at Omaha, Neb. He was then promoted to land commissioner of the Union Pacific, becoming land commissioner of the Southern Pacific in 1908.

OPERATING

H. R. Gernreich, assistant superintendent of the Los Angeles division of the Southern Pacific at Los Angeles, Cal., has been transferred to the Western division at Oakland Pier, Cal.

The position of superintendent of the Pocatello (Idaho) terminal of the Oregon Short Line was abolished on February 1 and supervision of the yard and the passenger and freight stations at that point has been assumed by R. A. Pierce, general superintendent, with headquarters at Pocatello.

H. W. Walker has been appointed trainmaster on the St. Louis district of the Illinois Central at Carbondale, Ill., succeeding C. F. Duggan, who has been transferred to the Springfield district at Clinton, Ill. Mr. Duggan replaces Frank Walker, whose headquarters remain at Clinton, and who succeeds W. A. Golze, who retired from active service on February 1.

The Chicago, Milwaukee, St. Paul & ' Pacific, on February 1, combined the La-Crosse and River divisions into one division to be known as the LaCrosse & River division, comprising 609 miles of line. O. H. Frick, superintendent of the LaCrosse division at Portage, Wis., has been appointed superintendent of the combined division, with headquarters at LaCrosse, Wis. On the same date the Iowa & Minnesota division and the Southern Minnesota division were combined into one division to be known as the Iowa & Southern Minnesota division, made up of 905 miles of line. G. A. Van Dyke, superintendent of the Southern Minnesota division, has been appointed superintendent of the Iowa & Southern Minnesota division, with headquarters as before at Austin, Minn. M. T. Skewes, superintendent of the Iowa & Minnesota division and the River division, with headquarters at Minneapolis, Minn., has been appointed assistant superintendent of the Iowa & Southern Minnesota division, with headquarters at Austin.

J. C. White, who has been appointed superintendent of the Monongahela division of the Pennsylvania, as announced in Railway Age of January 17, page 219, was born on June 9, 1888, at Huntingdon, Pa. He was graduated from Pennsylvania State College in 1911, and entered railroad service with the Pennsylvania on June 17, 1912. His initial position with the road was that of chairman in the maintenance of way department on the Tyrone division. On October 1, 1912, he was promoted to rodman, and in May, 1916, was assigned a position in the assistant engineer's office at Altoona, Pa. In October, 1916, he was promoted to transitman and later to assistant supervisor. He served in that capacity from May, 1917, to November, 1919, on the Tyrone, Allegheny, Pittsburgh and Philadelphia divisions, respectively. In November, 1919, he was assigned to the Maryland division as assistant master carpenter. March, 1921, he was transferred to the Philadelphia terminal division as assistant supervisor, and in May, 1922, he was transferred to the Baltimore division to act in the same capacity. In July, 1922, he was promoted to track supervisor and served as such on the Schaylkill and Middle divisions until January, 1928, when he was promoted to division engineer, serving in that capacity on the Richmond, Logansport and New York divisions, respectively. On January 16, 1931, he was promoted to superintendent of the Monongahela division.

Jasper N. Haines, whose appointment as general manager of the Lehigh Valley, with headquarters at Bethlehem, Pa., was announced in the Railway Age



lasper N. Haines

of January 17, page 219, was born at Pleasant Dale, W. Va., and was educated in the public schools and at Pittsburgh Academy. He commenced his

railway career on July 8, 1892, with the Pittsburgh & Lake Erie as yard clerk at Turner, Pa., and until April 2, 1898, he served successively as stenographer and clerk to the trainmaster at Pittsburgh, Pa. On August 8, 1898, he entered the service of the Lehigh Valley as stenographer to the superintendent at Hazleton, Pa., and in May, 1902, he was appointed chief clerk. In July, 1903, he was transferred to Wilkes-Barre, Pa., as chief clerk to the superintendent of the Wyoming division. From October, 1904, to November, 1907, he served as clerk and later as chief clerk to the general manager at So. Bethlehem, Pa. On November 18, 1907, he was appointed inspector of transportation at Bethlehem, and on August 1, 1909, he became trainmaster at Auburn, N. Y. From January 1, 1910, to June 30, 1914, he was assistant superintendent at Sayre, Pa., and on the latter date he was promoted to superintendent. Mr. Haines moved to Bethlehem on July 23, 1918, and until his recent promotion has served successively in the positions of assistant to operating assistant, assistant to general manager, superintendent of transportation and general superintendent of transportation.

TRAFFIC

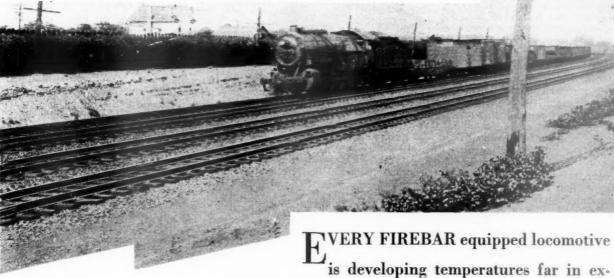
H. H. Gibson has been appointed general agent of the traffic department of the Chicago & Alton at New Orleans, La., succeeding F. W. Birchett, Jr., who has been transferred to Peoria, Ill.

C. C. Weedin has been appointed assistant general freight agent of the Union Pacific System, with headquarters at Omaha, Neb., succeeding C. W. Axtell, who retired from active service on February 1.

William J. Sheridan, general western freight agent of the Buffalo, Rochester & Pittsburgh, has been appointed assistant general freight agent with headquarters as before at Buffalo, N. Y., succeeding George A. Bowman, who has retired on pension after 26 years of service. The position of general western freight agent has been abolished.

Charles B. Ryan, passenger traffic manager of the Seaboard Air Line, with headquarters at Norfolk, Va., retired effective February 1, and G. Z. Phillips, assistant passenger traffic manager, has been appointed to succeed Mr. Ryan. Mr. Ryan was born in Maysville, Ky., and received his education at Maysville Seminary. He entered railway service in 1880, with the Richmond & Petersburg (now the Atlantic Coast Line), as a clerk, later being promoted to ticket agent. In 1881 he became connected with the Chesapeake & Ohio as ticket stock clerk and in 1883 he was promoted to advertising clerk. From 1886 to 1891 he served as chief clerk in the general passenger department and in 1891 he was promoted to division passenger agent. In July, 1892, he was appointed assistant general passenger agent. In

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June, 1902, he entered the service of the Seaboard Air Line as general passenger agent at Portsmouth, Va., and served in that capacity until March, 1920, when he became passenger traffic manager, the position he held until his retirement.

Mr. Phillips was born in Washington, D. C., and received his education at Georgetown University. Except for the period between 1899 and 1901, when he was connected with the Southern, his entire railway service has been with the Seaboard Air Line. He undertook the position of passenger agent for the S. A. L. at Washington, D. C., on February 1, 1901. He later served as traveling passenger agent at New York, and then, at Washington, D. C., as district passenger agent. He also served as general passenger agent of the Old Bay Line, operating between Baltimore, Md., Old Point Comfort, Va., Norfolk and Portsmouth, and later was sent to Jacksonville, Fla., as assistant general passenger agent of the Seaboard Air Line, which position he held until he was promoted to assistant passenger traffic manager at the same point. For a time he served as assistant to the president, with headquarters at Baltimore, Md., and Jacksonville, Fla., and later he returned to Washington, D. C., as general agent. On July 1, 1930, he was appointed assistant passenger traffic manager at Norfolk, Va., the position he held until his recent promotion to passenger traffic manager.

The Missouri-Kansas-Texas Lines, on February 1, established the office of freight traffic manager in Texas in order to handle adequately the increasing proportion of Katy traffic which originates or is destined to points in that State and the Southwest, through a ranking system traffic officer who is thoroughly conversant with the rate and traffic situations and will be in a position to maintain close relations with the shipping interests and the publc. Joseph F. Garvin, freight traffic manager, who has had his headquarters at St. Louis, Mo., with an office at Dallas, has been transferred to this newly created position, with head-quarters at Dallas. Ralph C. Trovillion, general freight agent at St. Louis, has been promoted to freight traffic manager, with headquarters at the same point. D. J. Collins, assistant general freight agent, has been promoted to general freight agent at St. Louis, succeeding Mr. Trovillion.

Mr. Trovillion, freight traffic manager at St. Louis, has been in railway service for 22 years. He was born at Golconda, Ill., on August 26, 1887, and attended the Western Military Academy at Alton, Ill. In 1905 he obtained his first railway experience as a stenographer and rate clerk on the Chicago & Alton at St. Louis. During 1907 and 1908 Mr. Trovillion was engaged in the real estate business, returning to railroad work in 1909 as a stenographer on the Katy at St. Louis. For the following seven years he advanced through various minor positions in the traffic department, then serving during 1918 as a second lieutenant in the air service of the United States

Army. He returned to the Katy in 1919 and was promoted to assistant general freight agent at St. Louis in 1920. Mr. Trovillion had been general freight agent since 1924, his promotion to freight traffic manager becoming effective on February 1.



Ralph C. Trovillion

Mr. Collins has been in the service of the Missouri-Kansas-Texas for more than 31 years. He obtained his first experience on that road in October, 1899, as a messenger boy in the local freight house at St. Louis. He was advanced through various positions in the local freight office and the commercial office to the position of chief clerk in the



D. J. Collins

freight traffic department on March 1, 1922. Mr. Collins was promoted to assistant general freight agent on April 1, 1924, his further promotion to general freight agent at St. Louis becoming effective on February 1.

ENGINEERING AND SIGNALING

J. F. Swenson, division engineer of the Middle division of the Pennsylvania at Altoona, Pa., has been appointed to succeed J. C. White, promoted, as division engineer of the

New York division, with headquarters at Jersey City, N. J. Mr. Swenson has in turn been succeeded by H. W. Anderson, division engineer of the Atlantic division at Camden, N. J. Spencer Danby, division engineer of the Cumberland Valley division at Chambersburg, Pa., has been transferred, in the same capacity, to Camden, and his position on the Cumberland Valley division has been filled by the promotion of N. R. Hunter, track supervisor on the Philadelphia terminal division.

MECHANICAL

As announced in the Railway Age of January 24, page 259, C. A. Gill, superintendent of motive power, Eastern lines, of the Baltimore & Ohio, has been granted a year's leave of absence to fill the position of chief consulting engineer of the government-operated railroad system of the Union of Socialistic Soviet Republics. Mr. Gill, whose headquarters will be at Moscow, will have particular charge of the motive power and other equipment problems of the Soviet system.

OBITUARY

Edwin Osgood, who retired from active service in 1900 as stationery store-keeper of the Chicago & North Western, with headquarters at Chicago, died at the West Suburban hospital, Oak Park, Ill., on January 29 of injuries received in a fall a month previous.

Peter Vliet, inspector of telegraph and telephones of the Wheeling & Lake Erie, died on the Dixie highway, just south of Covington, Ky., on January 23, when he suffered a heart attack and the automobile which he was driving crashed into a telephone pole. Prior to November 1, 1930, Mr. Vliet served for about 15 years as superintendent of telegraph and telephones of the W. & L. E., with headquarters at Brewster, Ohio.

Thomas W. Flannagan, assistant to the vice-president and general manager of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., died at his home in St. Paul on January 30 after an illness of nearly two years. Mr. Flannagan was born in England in 1863. He was educated in a grammar school at Manchester, England, and graduated from Victoria University in 1884. In 1887 he entered railway service as a rodman on the Northern Pacific, five years later becoming a resident engineer on the Soo Line. In 1898 he was advanced to track and maintenance of way engineer, then being appointed storekeeper in 1901, with headquarters at Minneapolis. Mr. Flannagan was promoted to general storekeeper in 1909, a position he held until his promotion to assistant to the general manager in 1920. He was appointed assistant to the vice-president and general manager in 1926.